

**Table 1: Modify Text Attributes**

Level_4	PARAGRAPH_ID	OBJECT_ID	RELEASE	TEXT	CLARIFICATION	REQ_TYPE	REQ_STATUS	VERIFICATION_METHOD	VERIFICATION_STATUS	CCR
CC	F-ANA-01020	5046	A	The FOS shall be able to access all user generated MMM statistics data files for analysis.	MMM refers to the minimum value, the maximum value and the mean value for a defined time interval. Along with these values, the standard deviation and number of samples will also be maintained.	functional		test		
CT	F-ANA-01020								<u>verified</u>	
CC	F-ANA-02010	11184	B	The FOS, by default, shall determine the appropriate data base to use for processing each request for data analysis.		functional	approved	test	<u>unverified</u>	96-0952A
CT	F-ANA-02010								<u>verified</u>	
CC	F-ANA-02030	1565	B	The FOS shall have the capability to utilize more than one valid data base if the time interval		functional		test		

				requested for data analysis spans an interval during which more than one database was utilized for operations.						
<b>CT</b>	F-ANA-02030								<u>verified</u>	
<b>CC</b>	F-ANA-02040	1566	B	The FOS shall, by default, only use a data base for processing analysis requests during the time interval in which the database was being used operationally .		functional		test		
<b>CT</b>	F-ANA-02040								<u>verified</u>	
<b>CC</b>	F-ANA-03010	5054	A	The FOS shall be able to perform analysis on all telemetry parameters contained within the telemetry archive.		functional		analysis		
<b>CT</b>	F-ANA-03010								<u>verified</u>	
<b>CC</b>	F-ANA-03015	5055	A	The time span for the		functional		analysis		

				analysis shall be one second or greater.						
<b>CT</b>	F-ANA-03015								<u>verified</u>	
<b>CC</b>	F-ANA-03020	1569	A	The FOS shall verify that for user supplied start and stop times, the stop time is greater than the start time.		functional		analysis		
<b>CT</b>	F-ANA-03020								<u>verified</u>	
<b>CC</b>	F-ANA-03050	5056	A	The FOS shall perform analysis on all requested telemetry parameters which have at least one sampling within the specified time interval.	Types of analysis allowable in an analysis request are defined in section 9.1.9.1.	functional		analysis		
<b>CT</b>	F-ANA-03050								<u>verified</u>	
<b>CC</b>	F-ANA-03070	1574	A	The FOS shall by default use data flagged as good quality in routine analysis.		functional		analysis		
<b>CT</b>	F-ANA-03070								<u>verified</u>	
<b>CC</b>	F-ANA-03080	1575	A	The FOS shall allow the user to request the		functional		analysis		

				use of data with questionable quality in routine analysis.						
<b>CT</b>	F-ANA-03080								<u>verified</u>	
<b>CC</b>	F-ANA-03135	5333	A	The FOS shall provide the capability to uniquely time tag parameters to the granularity of 1 milliseconds.		functional		analysis		
<b>CT</b>	F-ANA-03135								<u>verified</u>	
<b>CC</b>	F-ANA-03140	1581	B	The FOS shall check for the existence of all specified mnemonics whenever a new telemetry data base, (start of the request or data base crossover), is encountered during the processing of the data analysis request.	A data base crossover is the point in time when a new version of the data base replaces the current version and is now considered the operational data base. The time at which this occurs is maintained in the system thus allowing the appropriate data base to be utilized	functional		analysis		

					when analyzing historical data.					
<b>CT</b>	F-ANA-03140								<u>verified</u>	
<b>CC</b>	F-ANA-03160	1583	B	The FOS shall check for the validity of a requested EU conversion (existence of a defined conversion) whenever a new telemetry data base, (start of the request or data base crossover), is encountered during the processing of a data analysis request.		functional		analysis		
<b>CT</b>	F-ANA-03160								<u>verified</u>	
<b>CC</b>	F-ANA-04010	1585	A	The FOS shall build a dataset in response to a request for data analysis.		functional		analysis		
<b>CT</b>	F-ANA-04010								<u>verified</u>	
<b>CC</b>	F-ANA-04020	13202	B	The FOS shall be able to generate datasets	S/C data is stored in a merged archive of	functional	approved	analysis	<u>unverified</u>	97-0723A

				from archived S/C telemetry.	real-time and recorder data. Since this merged archive contains both types, the datasets generated may also contain both, depending on the time span of the dataset.					
<b>CT</b>	F-ANA-04020								<u>verified</u>	
<b>CC</b>	F-ANA-04060	12980	A	A dataset size shall only be limited by the maximum UNIX file size (2 GB).		functional	approved	analysis	<del>unverified</del>	97-0492A
<b>CT</b>	F-ANA-04060								<u>verified</u>	
<b>CC</b>	F-ANA-04070	1591	A	The FOS shall provide the capability to generate datasets which include any combination of one or more telemetry mnemonics for a single specified mission.		functional		inspection		
<b>CT</b>	F-ANA-04070								<u>verified</u>	
<b>CC</b>	F-ANA-04080	1592	A	The FOS		functional		analysis		

				shall provide the requested EU and/or raw value for each occurrence of each specified telemetry mnemonic in the dataset.						
<b>CT</b>	F-ANA-04080								<u>verified</u>	
<b>CC</b>	F-ANA-04090	13045	A	The FOS shall provide the spacecraft time for each telemetry mnemonic in the dataset.	Spacecraft time for each mnemonic is expressed as an offset from the time of the first parameter in the dataset.	functional	approved	analysis	<del>unverified</del>	97-0646
<b>CT</b>	F-ANA-04090								<u>verified</u>	
<b>CC</b>	F-ANA-04100	1594	A	The FOS shall provide the capability to generate datasets based on spacecraft start and stop times as specified in the request.		functional		analysis		
<b>CT</b>	F-ANA-04100								<u>verified</u>	
<b>CC</b>	F-ANA-04110	5064	A	The FOS shall provide the capability to generate datasets		functional		analysis		

				which contain telemetry values based on user specified sampling rate specified per parameter.						
<b>CT</b>	F-ANA-04110								<u>verified</u>	
<b>CC</b>	F-ANA-04200	13500	B	The FOS shall provide the capability to determine the state of each of the S/C subsystems and instruments, based on values of valid telemetry parameters.	The state of the subsystem or instrument refers to its mode. Examples of states would be on, off, charging, discharging, calibration mode, etc. Requirement implemented in the Decision Support System.	functional	approved	analysis	<del>unverified</del>	97-0967
<b>CT</b>	F-ANA-04200								<u>verified</u>	
<b>CC</b>	F-ANA-04210	13501	B	The FOS shall provide the capability to determine the status of each of the S/C subsystems and instruments,	The status of a subsystem or instrument refers to the overall health of the component. Examples of status's would be nominal and failed.	functional	approved	analysis	<del>unverified</del>	97-0967



				based on values of valid telemetry parameters.	Requirement implemented in the Decision Support System.					
<b>CT</b>	F-ANA-04210								<u>verified</u>	
<b>CC</b>	F-ANA-04220	13502	B	The FOS shall provide the capability to determine the configuration of each of the S/C subsystems and instruments, based on values of valid telemetry parameters.	The configuration of a subsystem or instrument is the description of how the component is currently being utilized. Examples of configurations would be on-line and backup. Requirement implemented in the Decision Support System.	functional	approved	analysis	<u>unverified</u>	97-0967
<b>CT</b>	F-ANA-04220								<u>verified</u>	
<b>CC</b>	F-ANA-05180	1631	B	The FOS shall compute statistics for the FDF data upon receipt of the data.		functional		analysis		
<b>CT</b>	F-ANA-05180								<u>verified</u>	
<b>CC</b>	F-ANA-06030	12982	B	The FOS shall provide the capability for monitoring	The following FOS capabilities provide for the	functional	approved	analysis	<u>unverified</u>	97-0492A

				and evaluating spacecraft functions, resources, and performance including:a. stored command processingb. spacecraft recordersc. safe mode processesd. electrical power subsysteme. propulsion subsystemf. guidance and navigationg. C&DHh. communicati on	monitoring and evaluation of the aforementio ed (a-h):1. state check covers a2. SSR covers b3. DSS covers c4. Statistics processing covers d-h.					
<b>CT</b>	F-ANA-06030								<u>verified</u>	
<b>CC</b>	F-ANA-07400	12983	B	The EOC shall monitor housekeepin g telemetry and provide notification of new spacecraft activity log messages.		functional	approved	analysis	<u>unverified</u>	97-0492A
<b>CT</b>	F-ANA-07400								<u>verified</u>	
<b>CC</b>	F-ANA-07420	12985	B	The EOC shall notify the user of the number of back orbit		functional	approved	demo	<u>unverified</u>	97-0492A

				activity log messages after the dump data is processed.						
<b>CT</b>	F-ANA-07420								<u>verified</u>	
<b>CC</b>	F-ANA-07430	12986	B	The EOC shall indicate the number of new critical activity log messages from the dumped back orbit data.	Critical activity log messages are defined in the database.	functional	approved	demo	<del>unverified</del>	97-0492A
<b>CT</b>	F-ANA-07430								<u>verified</u>	
<b>CC</b>	F-ANA-07440	13115	B	The FOS shall provide the capability to retrieve archived AM1 activity log messages for analysis.		functional	approved	demo	<del>unverified</del>	97-0753A
<b>CT</b>	F-ANA-07440								<u>verified</u>	
<b>CC</b>	F-ANA-09070	5112	B	The EOC shall provide the capability to define, for each EASE, a text description of the EASE.				analysis		
<b>CT</b>	F-ANA-09070								<u>verified</u>	
<b>CC</b>	F-ANA-09080	5113	B	The FOS shall, when an EASE				analysis		

				evaluation result is TRUE, display the text description (if defined) of the EASE.						
<b>CT</b>	F-ANA-09080								<u>verified</u>	
<b>CC</b>	F-ANA-09090	5114	B	The EOC shall provide the capability to define, for each EASE, a text description of recommended procedures to follow when the EASE evaluation result is TRUE.	A text description is intended to describe the situation indicated by the EASE, as well as add any meaningful information required by the user. Example : The high gain antenna gimbal drive motor halted due to excessive temperature, greater than 70 celcius. This usually occurs when the spacecraft orients itself with the HGA assembly in line with the sun.			analysis		
<b>CT</b>	F-ANA-09090								<u>verified</u>	
<b>CC</b>	F-ANA-09150	5120	B	The EOC shall provide				analysis		

				the capability to evaluate up to 50 EASEs during real time.						
<b>CT</b>	F-ANA-09150								<u>verified</u>	
<b>CC</b>	F-ANA-09300	13131	B	The FOS shall provide the capability to determine the stability of the spacecraft safe hold mode by evaluating multiple spacecraft telemetry parameters.	Stability is determined to be "stable" or "unstable" based on the status of the electrical power subsystem and attitude control submode.	functional	approved	demo	<u>unverified</u>	97-0752A
<b>CT</b>	F-ANA-09300								<u>verified</u>	
<b>CC</b>	F-ANA-09310	13134	B	The FOS shall provide the capability to determine the configuration and stability of the spacecraft attitude control system when the spacecraft is in safe hold mode.	For AM1, FOS will determine the submode of the active ACE (earth pointing, inertial pointing, sun pointing).	functional	approved	demo	<u>unverified</u>	97-0752A
<b>CT</b>	F-ANA-09310								<u>verified</u>	
<b>CC</b>	F-ANA-09315	13135	B	The FOS shall provide	The EPS stability is	functional	approved	demo	<u>unverified</u>	97-0752A

				the capability to determine the stability of the spacecraft electrical power subsystem while the spacecraft is in safe hold.	evaluated based on the stability of the solar arrays, batteries, and whether or not the spacecraft is in an anomalous power-negative state during spacecraft day.					
<b>CT</b>	F-ANA-09315								<u>verified</u>	
<b>CC</b>	F-CMD-01120	1494	A	The EOC shall be capable of transmitting commands to the EOS spacecraft via EDOS using the SN (Space Network).		interface		demo		
<b>CT</b>	F-CMD-01120								<u>verified</u>	
<b>CC</b>	F-CMD-01125	13089	B	The EOC shall be capable of transmitting commands to the EOS spacecraft via EDOS using the S-band Contingency Ground Stations in contingency or		interface	approved	demo	<u>unverified</u>	97-0724

[illegible]

<b>CC</b>	F-CMD-01250	10251	B	The EOC shall implement command spacing (metering) to maintain the required real time uplink rate.		functional	approved	demo		
<b>CT</b>	F-CMD-01250								<u>verified</u>	
<b>CC</b>	F-CMD-01310	1502	A	The EOC shall permit an authorized EOC operator to issue individual commands, in real time.		functional		demo		
<b>CT</b>	F-CMD-01310								<u>verified</u>	
<b>CC</b>	F-CMD-01317	1504	A	The EOC shall be capable of transmitting commands from a ground script.		functional		demo		
<b>CT</b>	F-CMD-01317								<u>verified</u>	
<b>CC</b>	F-CMD-01320	10252	B	The EOC shall merge spacecraft and instrument commands, and spacecraft and instrument memory loads into	An active load must be killed before operator commands will be accepted.	functional	approved	demo		



				one uplink stream.						
<b>CT</b>	F-CMD-01320								<u>verified</u>	
<b>CC</b>	F-CMD-01325	1506	B	The EOC shall be capable of transmitting predefined Absolute Time Command (ATC) loads.		interface		demo		
<b>CT</b>	F-CMD-01325								<u>verified</u>	
<b>CC</b>	F-CMD-01330	1507	B	The EOC shall be capable of transmitting predefined Relative Time Sequence (RTS) loads.		interface		demo		
<b>CT</b>	F-CMD-01330								<u>verified</u>	
<b>CC</b>	F-CMD-01335	1508	B	The EOC shall be capable of transmitting flight software loads.		interface		demo		
<b>CT</b>	F-CMD-01335								<u>verified</u>	
<b>CC</b>	F-CMD-01340	1509	B	The EOC shall be capable of transmitting table loads.	The table loads may be for either the spacecraft, or an instrument.	interface		demo		
<b>CT</b>	F-CMD-01340								<u>verified</u>	
<b>CC</b>	F-CMD-01345	1510	B	The EOC shall be capable of		interface		demo		

				transmitting instrument microproces sor loads.						
<b>CT</b>	F-CMD-01345								<u>verified</u>	
<b>CC</b>	F-CMD-02110	12082	A	The EOC shall assemble standard packets from the command structures formatted for on board execution.	This packet format is specified in CCSDS 202.0-B-2, Telecomman d Part 2 Data Routing Service, of November, 1992. AM-1 command packet format is defined in ICD-106.	functional		test	<del>unverified</del>	97-0086
<b>CT</b>	F-CMD-02110								<u>verified</u>	
<b>CC</b>	F-CMD-02120	10253	B	The EOC shall encase packets within a command link transmission unit (CLTU).	This is specified in CCSDS 202.0-B-2, Telecomman d Part 2 Data Routing Service, of November 1991.	functional	approved	test		
<b>CT</b>	F-CMD-02120								<u>verified</u>	
<b>CC</b>	F-CMD-02125	10254	B	The EOC shall monitor command link control words (CLCWs) from the spacecraft to ascertain status of the command	This is specified in CCSDS 202.0-B-1, Telecomman d Part 2.1 Command Operation Procedures, of October 1991.	functional	approved	test		

				link.						
<b>CT</b>	F-CMD-02125								<u>verified</u>	
<b>CC</b>	F-CMD-02130	11182	B	The EOC shall support the generation of FARM control commands.	These are specified in CCSDS 202.0-B-1, Telecommand Part 2.1 Command Operation Procedures, of October 1991.	functional	approved	test	<u>unverified</u>	96-0952A
<b>CT</b>	F-CMD-02130								<u>verified</u>	
<b>CC</b>	F-CMD-02135	10853	A	The EOC shall append the necessary acquisition sequence to the CLTU(s) prior to transmission to EDOS.	For the Physical Layer Operations Procedure-1 (PLOP-1) the acquisition sequence will precede each CLTU. For the Physical Layer Operations Procedure-2 (PLOP-2) the acquisition sequence will precede a group of one or more CLTUs.	functional	approved	test	<u>unverified</u>	96-0955
<b>CT</b>	F-CMD-02135								<u>verified</u>	
<b>CC</b>	F-CMD-02140	10863	A	The EOC shall append the necessary gap to the CLTU prior to	For the Physical Layer Operations Procedure-1 (PLOP-1) the gap will follow	functional	approved	test	<u>unverified</u>	96-0955

				transmission to EDOS.	each CLTU. For the Physical Layer Operations Procedure-2 (PLOP-2) no gap is required.					
<b>CT</b>	F-CMD-02140								<u>verified</u>	
<b>CC</b>	F-CMD-02210	1515	A	The EOC shall validate all real time commands and ensure that the commands accepted conform to the command definition.	These commands may be issued from either a ground script, a procedure, or as operator input.	functional		test		
<b>CT</b>	F-CMD-02210								<u>verified</u>	
<b>CC</b>	F-CMD-02215	1516	A	The EOC shall provide the capability to assemble commands from command mnemonic requests.		functional		test		
<b>CT</b>	F-CMD-02215								<u>verified</u>	
<b>CC</b>	F-CMD-02220	1517	A	The EOC shall assign default values, if available, to command data portions if not specified by		functional		test		

				the user.						
<b>CT</b>	F-CMD-02220								<u>verified</u>	
<b>CC</b>	F-CMD-02225	1518	A	The EOC shall provide the capability to assemble commands with submnemonic specifications.	Commands with submnemonic specifications are also known as serial magnitude, nondiscrete, or analog commands in other control centers.	functional		test		
<b>CT</b>	F-CMD-02225								<u>verified</u>	
<b>CC</b>	F-CMD-02230	1519	A	The EOC shall use a predefined default value for a submnemonic when one is not explicitly provided.		functional		test		
<b>CT</b>	F-CMD-02230								<u>verified</u>	
<b>CC</b>	F-CMD-02235	1520	A	The EOC shall require submnemonic values for commands having submnemonic specifications, but lacking default values.	Such a command will be rejected if the command is issued without specifying a value for the submnemonic.	functional		test		
<b>CT</b>	F-CMD-02235								<u>verified</u>	
<b>CC</b>	F-CMD-02240	1521	A	The EOC shall provide		functional		test		

				the user the capability to view the most current command in binary (numeric) format.						
<b>CT</b>	F-CMD-02240								<u>verified</u>	
<b>CC</b>	F-CMD-02245	11860	A	The EOC shall accept command submnemonic values specified as states.	The FOS will convert the user specified state value (character format) into its corresponding binary pattern as specified in the database. Commands containing submnemonic states not specified in the database for that submnemonic will be rejected, as per requirement F-CMD-02210.	functional	approved	test	<u>unverified</u>	96-1358A
<b>CT</b>	F-CMD-02245								<u>verified</u>	
<b>CC</b>	F-CMD-02260	11863	A	The EOC shall be capable of range checking submnemonic values	For submnemonic s using polynomial conversions, range checking is	functional	approved	test	<u>unverified</u>	96-1358A

				entered by the user.	performed on the binary value obtained from the conversions.					
<b>CT</b>	F-CMD-02260								<u>verified</u>	
<b>CC</b>	F-CMD-03115	10256	A	The EOC shall allow for overriding (disablement ) of prerequisite checking.		functional	approved	test		
<b>CT</b>	F-CMD-03115								<u>verified</u>	
<b>CC</b>	F-CMD-03125	10257	A	The EOC shall suppress transmission of commands which fail prerequisite checking.		functional	approved	test		
<b>CT</b>	F-CMD-03125								<u>verified</u>	
<b>CC</b>	F-CMD-03127	4983	A	The EOC shall allow the operator to override a command prerequisite state check failure.	Upon prerequisite state check failure, the operator will be prompted for override permission. If the operator's response indicates override, processing of the command will continue as though prerequisite	functional		test		

					check override had been enabled at the time the command was issued.					
<b>CT</b>	F-CMD-03127								<u>verified</u>	
<b>CC</b>	F-CMD-03130	10258	A	The EOC shall deem as failing prerequisite check those commands referencing telemetry points that have static data values.	Static data values are values which are not current; no data has been recently received.	functional	approved	test		
<b>CT</b>	F-CMD-03130								<u>verified</u>	
<b>CC</b>	F-CMD-03133	10259	A	The FOS shall report the status of each prerequisite check to the user.		functional	approved	test		
<b>CT</b>	F-CMD-03133								<u>verified</u>	
<b>CC</b>	F-CMD-03210	10261	A	The EOC shall determine a specific command as critical based on a its definition.	This definition is contained within the data base.	functional	approved	test		
<b>CT</b>	F-CMD-03210								<u>verified</u>	
<b>CC</b>	F-CMD-03215	10262	A	The EOC shall require a user authorization (allow or cancel) prior		functional	approved	test		



				to uplinking a critical command, regardless of its origin (operator input, command procedure, or ground script).						
<b>CT</b>	F-CMD-03215								<u>verified</u>	
<b>CC</b>	F-CMD-03220	1530	B	The EOC shall require a user to enter a single authorization (allow or cancel) prior to uplinking a stored command load containing critical commands.		functional		test		
<b>CT</b>	F-CMD-03220								<u>verified</u>	
<b>CC</b>	F-CMD-03225	10263	A	The EOC shall prompt the user for a critical command authorization .	The user will be required to respond to critical command prompt before any further activities can be performed.	functional	approved	test		
<b>CT</b>	F-CMD-03225								<u>verified</u>	
<b>CC</b>	F-CMD-03310	1532	B	The EOC shall verify existence of the load upon receipt		functional		test		

				of a load uplink request.						
<b>CT</b>	F-CMD-03310								<u>verified</u>	
<b>CC</b>	F-CMD-03315	1533	B	The EOC shall check load data by verifying pertinent load parameters to ensure proper load identification .	Pertinent load parameters include spacecraft id, date/time window and destination.	functional		test		
<b>CT</b>	F-CMD-03315								<u>verified</u>	
<b>CC</b>	F-CMD-03320	1534	B	The FOS shall notify the user of load validation failures.		functional		demo		
<b>CT</b>	F-CMD-03320								<u>verified</u>	
<b>CC</b>	F-CMD-03410	1535	A	The EOC shall verify prior to acceptance of a command that the command was issued from the user currently having the command authority.	This insures that each spacecraft has only a single point of command.	functional		test		
<b>CT</b>	F-CMD-03410								<u>verified</u>	
<b>CC</b>	F-CMD-04115	5047	A	The EOC shall archive all uplinked	I.E. The command blocks will be	functional		demo		

				information, in the format transmitted from the EOC.	archived in the format sent to EDOS.					
<b>CT</b>	F-CMD-04115								<u>verified</u>	
<b>CC</b>	F-CMD-04120	1538	A	The FOS shall notify the user when a command is transmitted.		functional		demo		
<b>CT</b>	F-CMD-04120								<u>verified</u>	
<b>CC</b>	F-CMD-04210	1540	B	The EOC shall provide for the automatic retransmissi on of CLTUs once it has been determined that command(s) have been lost.		functional		test		
<b>CT</b>	F-CMD-04210								<u>verified</u>	
<b>CC</b>	F-CMD-04215	1541	B	The EOC shall implement retransmissi on such that all commands transmitted since the last command known to be received and accepted at the spacecraft shall be		functional		test		

				retransmitted in the same order as originally transmitted.						
<b>CT</b>	F-CMD-04215								<u>verified</u>	
<b>CC</b>	F-CMD-04220	1542	B	The EOC shall provide a predefined, operator overridable retransmissi on count to limit the number of retransmissi ons attempted.		functional		test		
<b>CT</b>	F-CMD-04220								<u>verified</u>	
<b>CC</b>	F-CMD-04225	1543	B	The EOC shall permit the operator to disable command retransmissi on.	Specifying a retransmissio n count value of zero effectively disables retransmissio n.	functional		test		
<b>CT</b>	F-CMD-04225								<u>verified</u>	
<b>CC</b>	F-CMD-04230	1544	B	The EOC shall provide the capability to set the next expected ground frame sequence number to a user specified value.	This capability is provided to permit resynchroniza tion of the ground and spacecraft frame sequence numbers. It is permitted only when command transmission	functional		test		

					is not in progress.					
<b>CT</b>	F-CMD-04230								<u>verified</u>	
<b>CC</b>	F-CMD-05115	1546	B	The EOC shall notify the operator of the status of each command uplinked, as success or fail.		functional		test		
<b>CT</b>	F-CMD-05115								<u>verified</u>	
<b>CC</b>	F-CMD-05120	12053	B	The EOC shall provide the capability for the user to reconfigure the channel selection (I/Q) of CLCWs for command receipt verification processing.		functional		test	<u>unverified</u>	97-0066
<b>CT</b>	F-CMD-05120								<u>verified</u>	
<b>CC</b>	F-CMD-05220	5048	B	The EOC shall provide the capability to verify via telemetry the successful execution of spacecraft commands by checking in real time the status of a single telemetry	The database will specify which commands are to be telemetry verified, and will provide for specification of a single range of acceptable discrete or analog values	functional		test		

				point.	for the telemetry point.					
<b>CT</b>	F-CMD-05220								<u>verified</u>	
<b>CC</b>	F-CMD-05225	1548	B	The FOS shall notify the operator of spacecraft command telemetry verification status.		functional		test		
<b>CT</b>	F-CMD-05225								<u>verified</u>	
<b>CC</b>	F-CMD-05230	1549	B	The EOC shall provide the capability to verify via telemetry the successful execution of instrument commands.		functional		test		
<b>CT</b>	F-CMD-05230								<u>verified</u>	
<b>CC</b>	F-CMD-05235	1550	B	The FOS shall notify the operator of instrument command telemetry verification status.		functional		test		
<b>CT</b>	F-CMD-05235								<u>verified</u>	
<b>CC</b>	F-CMD-05245	5049	B	The EOC shall allow a pre-defined duration time after receipt verification before determining that a	The pre-determined time is defined per command, and is based upon onboard execution time;	functional		test		

				command has failed telemetry verification.	transmission time is not taken into account. This is because the verification wait period does not begin (in real time) until after the CLCW has been received; the transmission delay period for the CLCW is identical to that for the telemetry, and this accounts for the transmission delay.					
<b>CT</b>	F-CMD-05245								verified	
<b>CC</b>	F-CMD-05247	5051	B	The EOC shall check telemetry values for all outstanding commands needing telemetry verification at intervals of no more than a pre-defined number of seconds.	This gives the EOC the capability to determine that a command is telemetry verified, prior to the pre-defined duration time. The pre-defined duration is specified in the database.	functional		test		

					For example, if the duration time for a particular command is one minute and the interval time is specified as five seconds, the command could be telemetry verified in as little as five seconds after uplink verification. This same command, however, would not be considered to have failed telemetry verification unless the one minute duration lapses without the command being telemetry verified.					
<b>CT</b>	F-CMD-05247								<u>verified</u>	
<b>CC</b>	F-CMD-06110	12086	B	The FOS shall alert the operator if a Command Echo Block is not received		functional		test	<u>unverified</u>	97-0093



				from EDOS within a pre-defined time interval after transmission of a Command Test Block to EDOS.						
<b>CT</b>	F-CMD-06110								<u>verified</u>	
<b>CC</b>	F-CMD-06120	12087	B	The FOS shall allow the operator to reconfigure the timeout value for receipt of Command Echo Blocks from EDOS.		functional		test	<u>unverified</u>	97-0093
<b>CT</b>	F-CMD-06120								<u>verified</u>	
<b>CC</b>	F-CMD-11210	2252	A	The EOC shall uplink at a rate of 10 kilobits per second (kbps) when the control center is configured for transmission utilizing SN SSA service and the AM1 High Gain antenna.		interface		demo		
<b>CT</b>	F-CMD-11210								<u>verified</u>	
<b>CC</b>	F-CMD-11211	10265	B	The EOC shall uplink at a rate of 125 bits per		interface	approved	demo		

				second (bps) when the control center is configured for transmission utilizing SN SSA service and the AM1 Omni antenna.						
<b>CT</b>	F-CMD-11211								<u>verified</u>	
<b>CC</b>	F-CMD-11212	10266	B	The EOC shall uplink at a rate of 1 kilobits per second (kbps) when the control center is configured for transmission utilizing SN SMA service and the AM1 High Gain antenna.		interface	approved	demo		
<b>CT</b>	F-CMD-11212								<u>verified</u>	
<b>CC</b>	F-CMD-11215	13092	B	The EOC shall uplink at a rate of 2 kbps when the EOC is configured for transmission utilizing the S-band Contingency Ground Stations.		interface	approved	demo	<u>unverified</u>	97-0724

<b>CT</b>	F-CMD-11215								<u>verified</u>	
<b>CC</b>	F-CMD-11226	10638	A	The EOC shall convert all command data to NRZ-M format including the data to be transmitted, the synchronization bits, and the tracking bits.		interface	approved	test	<del>unverified</del>	96-0735A
<b>CT</b>	F-CMD-11226								<u>verified</u>	
<b>CC</b>	F-CMD-12130	2258	A	The EOC shall utilize a single virtual channel for uplink.		interface		test		
<b>CT</b>	F-CMD-12130								<u>verified</u>	
<b>CC</b>	F-CMD-12240	10270	B	The EOC shall accept user supplied binary (hex) formatted commands.	Other than the critical prompt, neither validation nor verification is provided for commands entered in binary format.	functional	approved	test		
<b>CT</b>	F-CMD-12240								<u>verified</u>	
<b>CC</b>	F-CMD-12245	2260	A	The EOC shall generate commands in 1553-B format.	This format is specified in ICD-106 of 19 April 1994. Also note that the CTIU commands are formatted in 1553-B format.	standards		test		

<b>CT</b>	F-CMD-12245								<u>verified</u>	
<b>CC</b>	F-CMD-13230	2261	B	The EOC shall treat commands entered in binary (hex) format as critical commands.		functional		test		
<b>CT</b>	F-CMD-13230								<u>verified</u>	
<b>CC</b>	F-CMD-14313	2262	A	The EOC shall address all commands to the active CTIU by default.		functional		test		
<b>CT</b>	F-CMD-14313								<u>verified</u>	
<b>CC</b>	F-CMD-15245	5050	B	The EOC shall allow a pre-defined duration time of up to one minute after receipt verification before determining that a command has failed telemetry verification.	The pre-determined time is defined per command, and is based upon onboard execution time; transmission time is not taken into account. This is because the verification wait period does not begin (in real time) until after the CLCW has been received; the transmission	functional		test		

					delay period for the CLCW is identical to that for the telemetry, and this accounts for the transmission delay.					
<b>CT</b>	F-CMD-15245								<u>verified</u>	
<b>CC</b>	F-CMS-00105	1194	A	The EOC shall expand spacecraft and instrument activities in the DAS into lists of absolute time commands.	Activities will be expanded using expansion instructions defined in the PDB. For complex instruments, the activity expansion may be complex and involve many instrument and spacecraft commands.	functional		test		
<b>CT</b>	F-CMS-00105								<u>verified</u>	
<b>CC</b>	F-CMS-00110	1195	A	The EOC shall provide the capability to modify the expansion of an activity by applying parameter values supplied as part of an activity	Activity expansion instructions in the PDB will include information on the applicability of parameter values.	functional		test		

				request.						
<b>CT</b>	F-CMS-00110								<u>verified</u>	
<b>CC</b>	F-CMS-00120	1198	B	The EOC shall provide notification of command-level constraint violations in ATC load contents.		functional		demo		
<b>CT</b>	F-CMS-00120								<u>verified</u>	
<b>CC</b>	F-CMS-00125	1199	B	The EOC shall provide the capability to allow "soft" command-level constraint violations to remain in the ATC load.	The PDB will specify "hard" constraints, which cannot be violated, and "soft" constraints, which can be allowed to remain in the ATC load.	functional		test		
<b>CT</b>	F-CMS-00125								<u>verified</u>	
<b>CC</b>	F-CMS-00130	1200	B	The EOC shall provide the capability to prohibit "hard" command-level constraint violations remaining in the ATC load.	The PDB will specify "hard" constraints, which cannot be violated, and "soft" constraints, which can be allowed to remain in the ATC load.	functional		test		
<b>CT</b>	F-CMS-00130								<u>verified</u>	
<b>CC</b>	F-CMS-00205	10272	B	The EOC shall provide the	The operational period (also	functional	approved	test		

				capability to generate an ATC load from a list of absolute time commands that covers the same operational period as the DAS.	called a target day) for a DAS will be specified by the planner/scheduler. The nominal operational period for a DAS is 24 hours. Appropriate boundaries for the load will be determined so that the load will approximately cover the same operational period as the DAS.					
<b>CT</b>	F-CMS-00205								<u>verified</u>	
<b>CC</b>	F-CMS-00210	1203	A	The EOC shall convert the command portion of each absolute time command from mnemonic to binary form.	The EOC will convert commands to binary using the conversion instructions in the PDB.	functional		test		
<b>CT</b>	F-CMS-00210								<u>verified</u>	
<b>CC</b>	F-CMS-00215	1204	A	The EOC shall convert the time tag of each	The format of the time tags for specific spacecraft is	functional		test		

				absolute time command to the applicable spacecraft compatible format.	discussed in the mission-specific volume.					
<b>CT</b>	F-CMS-00215								<u>verified</u>	
<b>CC</b>	F-CMS-00220	1205	A	The EOC shall provide the capability to initiate generation of the ATC load which corresponds to a DAS upon request.		functional		demo		
<b>CT</b>	F-CMS-00220								<u>verified</u>	
<b>CC</b>	F-CMS-00230	10273	B	The EOC shall format the ATC load to conform to the ATC processing scheme on board the spacecraft.	The ATC processing scheme for specific spacecraft is described in the mission-specific volume.	functional	approved	analysis		
<b>CT</b>	F-CMS-00230								<u>verified</u>	
<b>CC</b>	F-CMS-00240	5017	A	The EOC shall provide the capability to generate and append to the ATC load or partial load all necessary load control	Examples of load control commands may include: load initiate command, select table command, load commit command, and buffer	functional		test		



				commands.	switch command. The number, type, and format of load control commands for specific spacecraft are discussed in the mission-specific volume.					
<b>CT</b>	F-CMS-00240								<u>verified</u>	
<b>CC</b>	F-CMS-00245	5019	B	The EOC shall have the capability to generate an ATC load report whenever an ATC or ATC partial load is generated.	All load reports generated will be made available to the IOT through use of the IST (See section 9.1.2.9.3).	functional		test		
<b>CT</b>	F-CMS-00245								<u>verified</u>	
<b>CC</b>	F-CMS-00425	10569	A	The EOC shall provide the capability to partition an ATC load at a user-requested boundary.	The EOC will notify the user if partitioning a load at a user-specified breakpoint would violate constraints defined in the PDB. Boundary is determined by user DAS selection - PAS.	functional	approved	test		
<b>CT</b>	F-CMS-00425								<u>verified</u>	
<b>CC</b>	F-CMS-00510	1215	B	The EOC		functional		test		

				shall maintain an ATC command-to-memory map consisting of the contents of each location in the ATC buffer.						
<b>CT</b>	F-CMS-00510								<u>verified</u>	
<b>CC</b>	F-CMS-00530	1216	B	The EOC shall update the ATC command-to-memory map when the ATC load has been successfully uplinked.	The real-time command subsystem provides notification to CMS of successful load uplink.	functional		test		
<b>CT</b>	F-CMS-00530								<u>verified</u>	
<b>CC</b>	F-CMS-00550	1217	B	The FOS shall provide the capability to generate a Memory Map Report listing the memory location (offset in ATC buffer) and contents of each location in the ATC buffer.		functional		demo		
<b>CT</b>	F-CMS-00550								<u>verified</u>	
<b>CC</b>	F-CMS-00610	9269	A	The EOC shall expand		functional		analysis		

				ground activities in the DAS into lists of time tagged ground directives.						
<b>CT</b>	F-CMS-00610								<u>verified</u>	
<b>CC</b>	F-CMS-00615	9270	A	The EOC shall provide the capability to modify the expansion of a ground activity into ground directives by applying parameter values supplied as part of an activity request.		functional		test		
<b>CT</b>	F-CMS-00615								<u>verified</u>	
<b>CC</b>	F-CMS-00620	1220	B	The EOC shall provide the capability to check the ground directives in the ground script against ground schedule constraints.	Ground schedule constraints will be defined in the PDB.	functional		analysis		
<b>CT</b>	F-CMS-00620								<u>verified</u>	
<b>CC</b>	F-CMS-00625	1221	B	The EOC shall provide notification		functional		demo		

				of ground schedule constraint violations.						
<b>CT</b>	F-CMS-00625								<u>verified</u>	
<b>CC</b>	F-CMS-00630	1222	B	The EOC shall provide the capability to allow "soft" ground constraint violations to remain in the ground script.	The PDB will specify "hard" constraints, which cannot be violated, and "soft" constraints, which can be allowed to remain in the ground script.	functional		test		
<b>CT</b>	F-CMS-00630								<u>verified</u>	
<b>CC</b>	F-CMS-00635	1223	B	The EOC shall provide the capability to prohibit "hard" ground constraint violations remaining in the ground script.	The PDB will specify "hard" constraints, which cannot be violated, and "soft" constraints, which can be allowed to remain in the ground script.	functional		test		
<b>CT</b>	F-CMS-00635								<u>verified</u>	
<b>CC</b>	F-CMS-00640	10275	A	For each stored command that is scheduled to execute, the EOC shall provide a comment in the ground script which specifies the command		functional	approved	test		

				and is time tagged with the same time as the stored command.						
<b>CT</b>	F-CMS-00640								<u>verified</u>	
<b>CC</b>	F-CMS-00660	5021	B	For each request to schedule a load uplink activity, the EOC shall provide the capability to verify that the applicable load is available and ready for uplink.		functional		test		
<b>CT</b>	F-CMS-00660								<u>verified</u>	
<b>CC</b>	F-CMS-00670	9272	B	The EOC shall provide the capability to generate a ground script from a list of ground directives that covers the same operational period as the DAS.		functional		analysis		
<b>CT</b>	F-CMS-00670								<u>verified</u>	
<b>CC</b>	F-CMS-00675	10276	B	The EOC shall provide the capability to initiate		functional	approved	demo		

				generation of the ground script which corresponds to a DAS upon request.						
<b>CT</b>	F-CMS-00675								<u>verified</u>	
<b>CC</b>	F-CMS-00710	13204	B	The FOS shall provide the capability to specify the content of an RTS load.	RTS load contents will be specified using the RTS load builder.	functional	approved	demo	<u>unverified</u>	97-0723A
<b>CT</b>	F-CMS-00710								<u>verified</u>	
<b>CC</b>	F-CMS-00720	1231	B	The FOS shall provide the capability to specify the content of an RTS load based on the contents of a previously defined RTS load.		functional		demo		
<b>CT</b>	F-CMS-00720								<u>verified</u>	
<b>CC</b>	F-CMS-00730	1235	B	The FOS shall provide the capability to validate RTS contents.	The FOS will validate RTS contents using the definition of the RTS buffer characteristics in the PDB.	functional		analysis		
<b>CT</b>	F-CMS-00730								<u>verified</u>	
<b>CC</b>	F-CMS-00735	1236	B	The FOS shall provide the		functional		test		

				capability to validate the mnemonics specified in an RTS load contents.						
<b>CT</b>	F-CMS-00735								<u>verified</u>	
<b>CC</b>	F-CMS-00740	1237	B	The FOS shall provide the capability to check the relative time commands in the RTS load content against command-level constraints.	Command-level constraints are defined in the PDB.	functional		test		
<b>CT</b>	F-CMS-00740								<u>verified</u>	
<b>CC</b>	F-CMS-00745	1238	B	The FOS shall provide notification of command-level constraint violations in RTS load contents.		functional		demo		
<b>CT</b>	F-CMS-00745								<u>verified</u>	
<b>CC</b>	F-CMS-00810	10279	B	The EOC shall provide the capability to generate an RTS load from an RTS load content which has been validated.		functional	approved	demo		

<b>CT</b>	F-CMS-00810								<u>verified</u>	
<b>CC</b>	F-CMS-00820	1242	A	The EOC shall provide the capability to convert the command portion of each relative time command from mnemonic to binary form.	The EOC will convert commands to binary using conversion instructions from the PDB.	functional		test		
<b>CT</b>	F-CMS-00820								<u>verified</u>	
<b>CC</b>	F-CMS-00830	1243	A	The EOC shall provide the capability to convert the time tag of each relative time command to a spacecraft compatible format.	The format of the time tags for specific spacecraft is discussed in the mission specific volume.	functional		test		
<b>CT</b>	F-CMS-00830								<u>verified</u>	
<b>CC</b>	F-CMS-00840	1244	A	The EOC shall provide the capability to generate and append to the RTS load all necessary load control commands.	Examples of load control commands may include: load initiate command, select table command, load commit command, and buffer switch command. The number, type, and	functional		test		



					format of load control commands for specific spacecraft are discussed in the mission-specific volume.					
<b>CT</b>	F-CMS-00840								<u>verified</u>	
<b>CC</b>	F-CMS-00850	13205	B	The EOC shall generate an RTS load report whenever an RTS load is generated.	All load reports generated will be made available to the IOT through use of the IST.	functional	approved	demo	<del>unverified</del>	97-0723A
<b>CT</b>	F-CMS-00850								<u>verified</u>	
<b>CC</b>	F-CMS-00860	12120	B	The EOC shall provide the capability to include in the RTS load report the following items, where applicable: a. Load name b. Load type c. Valid uplink period e. Load size in bytes f. RTS buffer number g. Starting and ending memory locations in the RTS table h.		functional		test	<del>unverified</del>	97-0080

				Number of commandsi. Number of critical commandsj. A listing of all RTS commands in the load, including for each command in the load: 1. the command's memory location 2. offset time, if applicable 3. command mnemonic 4. submnemonics and their values, if applicable 5. command bit pattern 6. criticality indicator						
<b>CT</b>	F-CMS-00860								<u>verified</u>	
<b>CC</b>	F-CMS-00910	10280	B	The EOC shall maintain a catalog of RTS loads existing in the EOC.		functional	approved	test		
<b>CT</b>	F-CMS-00910								<u>verified</u>	
<b>CC</b>	F-CMS-00915	1248	B	The EOC shall provide the capability to generate an		functional		demo		

				RTS Catalog Report listing load content name associated with each RTS load available for uplink in the EOC.						
<b>CT</b>	F-CMS-00915								<u>verified</u>	
<b>CC</b>	F-CMS-00920	1249	B	The EOC shall provide the capability to include in the RTS Catalog Report the RTS buffer identifier for which the load is valid, the load content source, and the valid load uplink window.		functional		test		
<b>CT</b>	F-CMS-00920								<u>verified</u>	
<b>CC</b>	F-CMS-00935	1252	B	The EOC shall maintain an RTS command-to-memory map specifying the contents of each location in each RTS buffer.		functional		test		

<b>CT</b>	F-CMS-00935								<u>verified</u>	
<b>CC</b>	F-CMS-00940	1253	B	The EOC shall update the RTS command-to-memory map when the RTS load has been successfully uplinked.		functional		test		
<b>CT</b>	F-CMS-00940								<u>verified</u>	
<b>CC</b>	F-CMS-00950	5027	B	The FOS shall provide the capability to generate a Memory Map Report listing the memory location (offset within an RTS) and contents of each location in an RTS buffer.		functional		demo		
<b>CT</b>	F-CMS-00950								<u>verified</u>	
<b>CC</b>	F-CMS-01010	13206	A	The FOS shall provide the capability to build the content of a table load.	Table load contents will be built by combining user input with a table definition in the PDB.	functional	approved	demo	<u>unverified</u>	97-0723A
<b>CT</b>	F-CMS-01010								<u>verified</u>	
<b>CC</b>	F-CMS-01020	10282	A	The FOS shall provide the capability to build the		functional	approved	demo		

[illegible]

<b>CC</b>	F-CMS-01110	1261	A	The EOC shall provide the capability to generate a table load from a valid table load content.		functional		test		
<b>CT</b>	F-CMS-01110								<u>verified</u>	
<b>CC</b>	F-CMS-01120	10284	A	The EOC shall provide the capability to convert each field of the table from its table load contents form to its spacecraft usable form.	Each field will be converted in accordance with its definition in the PDB.	functional	approved	test		
<b>CT</b>	F-CMS-01120								<u>verified</u>	
<b>CC</b>	F-CMS-01130	1263	A	The EOC shall generate and append to the table load all necessary load control commands.	Examples of load control commands may include: load initiate command, select table command, load commit command, and buffer switch command. The number, type, and format of load control commands are discussed in the	functional		test		

					mission-specific volume.					
<b>CT</b>	F-CMS-01130								<u>verified</u>	
<b>CC</b>	F-CMS-01140	1264	B	The EOC shall provide the capability to generate table loads from data received from FDF.	The tables to be generated from FDF data are specified in the FDF/EOC ICD.	functional		test		
<b>CT</b>	F-CMS-01140								<u>verified</u>	
<b>CC</b>	F-CMS-01150	11178	B	The EOC shall generate a table load report whenever a table load is generated.	All load reports generated will be made available to the IOT through use of the IST.	functional	approved	demo	<u>unverified</u>	96-0952A
<b>CT</b>	F-CMS-01150								<u>verified</u>	
<b>CC</b>	F-CMS-01160	12122	B	The EOC shall provide the capability to include in the table load report: a. Load name b. Load type c. Valid uplink period e. Load size in bytes f. Starting and ending memory location g. Contents of the load in		functional		test	<u>unverified</u>	97-0080

				hex, and where applicable in decimal						
<b>CT</b>	F-CMS-01160								<u>verified</u>	
<b>CC</b>	F-CMS-01210	10286	B	The EOC shall maintain a catalog of table loads existing in the EOC.		functional	approved	test		
<b>CT</b>	F-CMS-01210								<u>verified</u>	
<b>CC</b>	F-CMS-01215	1268	B	The EOC shall provide the capability to generate a Table Catalog Report listing load content name and valid uplink window associated with each table load available for uplink in the EOC.		functional		test		
<b>CT</b>	F-CMS-01215								<u>verified</u>	
<b>CC</b>	F-CMS-01220	1269	B	The EOC shall maintain a table load map specifying the ownership of each table that is defined in		functional		test		



				the table data base and the name of the table load content that is currently loaded into it.						
<b>CT</b>	F-CMS-01220								<u>verified</u>	
<b>CC</b>	F-CMS-01225	1270	B	The EOC shall provide the capability to generate a Table Map Report listing the name of the load content that is currently loaded into each table.		functional		test		
<b>CT</b>	F-CMS-01225								<u>verified</u>	
<b>CC</b>	F-CMS-01310	5034	A	The EOC shall validate the source, destination, and size of binary format instrument microprocessor load content generated externally to the FOS.	The valid source, destination, and size of each type of microprocess or load will be specified by the instrument teams. Load size validation will only be at a high level, to ensure the load is not larger than the	functional		analysis		

					microprocess or buffer.					
<b>CT</b>	F-CMS-01310								<u>verified</u>	
<b>CC</b>	F-CMS-01320	1273	A	The EOC shall generate a microproces sor load from a microproces sor load content.	The requirements for microprocess or loads for specific spacecraft are discussed in the mission specific volume.	functional		test		
<b>CT</b>	F-CMS-01320								<u>verified</u>	
<b>CC</b>	F-CMS-01325	5035	A	The EOC shall generate and append to the microproces sor load all necessary load control commands.	Examples of load control commands may include: load initiate command, select table command, load commit command, and buffer switch command. The number, type, and format of load control commands are discussed in the mission- specific volume. The load initiate command includes the CRC. The algorithm for	functional		test		

					the CRC is provided by the microprocess or instrument teams.					
<b>CT</b>	F-CMS-01325								<u>verified</u>	
<b>CC</b>	F-CMS-01330	11179	B	The EOC shall generate a microprocessor load report whenever a microprocessor load is generated.	All load reports generated will be made available to the IOT through use of the IST.	functional	approved	demo	<del>unverified</del>	96-0952A
<b>CT</b>	F-CMS-01330								<u>verified</u>	
<b>CC</b>	F-CMS-01340	12126	B	The EOC shall include in the microprocessor load report: a. Load name b. Load type c. Valid uplink period d. Load size in bytes f. Starting and ending memory location g. Contents of the load in hex.		functional		test	<del>unverified</del>	97-0080
<b>CT</b>	F-CMS-01340								<u>verified</u>	
<b>CC</b>	F-CMS-01350	5024	B	The EOC shall maintain a catalog of microprocessor	The microprocessor or catalog is a list of microprocessor	functional		test		

				sor loads available in the EOC.	or loads that are ready for uplink. The microprocess or catalog will be used when the scheduling of a microprocess or load uplink is requested via Planning & Scheduling.					
<b>CT</b>	F-CMS-01350								<u>verified</u>	
<b>CC</b>	F-CMS-01360	1278	B	The EOC shall provide the capability to generate a Microproces sor Catalog Report listing load content name and valid uplink window associated with each microproces sor load available for uplink in the EOC.		functional		test		
<b>CT</b>	F-CMS-01360								<u>verified</u>	
<b>CC</b>	F-CMS-01420	1281	B	The EOC shall generate a flight software load from a flight software	The requirements for flight software loads for specific spacecraft are discussed in	functional		test		

				load content.	the mission specific volume.					
<b>CT</b>	F-CMS-01420								<u>verified</u>	
<b>CC</b>	F-CMS-01425	1282	B	The EOC shall generate and append to the flight software load all necessary load control commands.	Examples of load control commands may include: load initiate command, select table command, load commit command, and buffer switch command. The number, type, and format of load control commands are discussed in the mission-specific volume.	functional		test		
<b>CT</b>	F-CMS-01425								<u>verified</u>	
<b>CC</b>	F-CMS-01430	13207	B	The EOC shall generate a flight software load report whenever a flight software load is generated.	All load reports generated will be made available to the IOT through use of the IST.	functional	approved	demo	<u>unverified</u>	97-0723A
<b>CT</b>	F-CMS-01430								<u>verified</u>	
<b>CC</b>	F-CMS-01440	12131	B	The EOC shall include in the flight		functional		test	<u>unverified</u>	97-0080

				software load report:a. Load nameb. Load typec. Valid uplink perioed. Load size in bytesf. Starting and ending memory locationg. Contents of the load in hex.						
<b>CT</b>	F-CMS-01440								<u>verified</u>	
<b>CC</b>	F-CMS-01450	5025	B	The EOC shall maintain a catalog of flight software loads available in the EOC.	The flight software catalog is a list of flight software loads that are available for uplink. The flight software catalog will be used when the scheduling of a flight software load uplink is requested via Planning & Scheduling.	functional		test		
<b>CT</b>	F-CMS-01450								<u>verified</u>	
<b>CC</b>	F-CMS-01460	1286	B	The EOC shall provide the capability to generate a Flight		functional		demo		

				Software Catalog Report listing load content name and valid uplink window associated with each flight software load available for uplink in the EOC.						
<b>CT</b>	F-CMS-01460								<u>verified</u>	
<b>CC</b>	F-CMS-01505	5348	B	The EOC shall provide the capability to produce an integrated report which includes the following information in chronological order: a. Absolute time commands to be executed b. Relative time commands to be executed c. Scheduled spacecraft contacts d. Real-time	The Integrated Report will be made available to the IOT via the IST.	functional		demo		

				commands to be uplinked. Loads to be uplinkedf. Expected orbital events						
<b>CT</b>	F-CMS-01505								<u>verified</u>	
<b>CC</b>	F-CMS-01512	5349	B	The FOS shall be able to produce the planned state of the spacecraft for discrete telemetry parameters and the location of the stored command pointer upon request.	The set of discrete telemetry parameters that pertain to this requirement are limited to those discrete telemetry parameters used to perform telemetry verification as defined in the Command Project Data Base.	functional		test		
<b>CT</b>	F-CMS-01512								<u>verified</u>	
<b>CC</b>	F-CMS-01720	1293	B	The EOC shall provide the capability to create a memory dump image from collected dump telemetry data.		functional		demo		
<b>CT</b>	F-CMS-01720								<u>verified</u>	
<b>CC</b>	F-CMS-01745	1299	B	The EOC		functional		demo		



				shall notify the user via an event message of the status of the memory dump comparison.						
<b>CT</b>	F-CMS-01745								<u>verified</u>	
<b>CC</b>	F-CMS-01750	1300	B	The EOC shall provide the capability to generate a report listing all discrepancies found during a memory dump comparison.		functional		test		
<b>CT</b>	F-CMS-01750								<u>verified</u>	
<b>CC</b>	F-CMS-10110	2190	A	The EOC shall generate absolute time commands which are consistent with the format specified in ICD-106.	The April, 1994 ICD-106 specifies that each absolute time command is of a fixed size of 24 octets, consisting of a time tag (3 octets), an inhibit identifier (1 octet), and command (20 octets).	functional		test		
<b>CT</b>	F-CMS-10110								<u>verified</u>	
<b>CC</b>	F-CMS-10120	2191	A	The EOC shall generate an		functional		test		

				ATC load in which the time tags associated with absolute time commands have a resolution of one second.						
<b>CT</b>	F-CMS-10120								<u>verified</u>	
<b>CC</b>	F-CMS-10125	12965	A	The EOC shall generate absolute time commands with time tags in spacecraft compatible format.	For AM1, the time tag format shall conform to the format defined in ICD-106.	functional	approved	test	<del>unverified</del>	97-0520
<b>CT</b>	F-CMS-10125								<u>verified</u>	
<b>CC</b>	F-CMS-10130	13116	B	The FOS shall fill the trailing words of an AM1 ATC command with zeroes.		functional	approved	demo	<del>unverified</del>	97-0756
<b>CT</b>	F-CMS-10130								<u>verified</u>	
<b>CC</b>	F-CMS-10210	10289	B	The EOC shall generate a SCC stored command table load that maps all absolute time commands into the SCC stored	The August, 1993 SD-110a indicates that absolute time commands should be mapped into the SCC stored command table in	functional	approved	test		

				command table in a manner that is consistent with the format and processing of the SCC stored command table as described in SD-110a.	ascending time order, starting with the first available location and wrapping around to the first location in the table when the last location in the table has been filled.					
<b>CT</b>	F-CMS-10210								<u>verified</u>	
<b>CC</b>	F-CMS-10240	13042	B	The EOC shall direct the placement of an ATC late change such that the load may overwrite unexecuted commands in the SCC stored command table.		functional	approved	test	<u>unverified</u>	97-0647
<b>CT</b>	F-CMS-10240								<u>verified</u>	
<b>CC</b>	F-CMS-10250	13698	A	The EOC shall prepend a load initiate command to the ATC load.	The load initiate command includes the CRC, which is calculated by EOC software. The AM1 ATC table ID is 11.	functional	approved	test	<u>unverified</u>	97-1116
<b>CT</b>	F-CMS-10250								<u>verified</u>	
<b>CC</b>	F-CMS-10255	2197	A	The EOC		functional		analysis		

				shall format ATC loads for uplink according to the CCSDS Telecommand packet protocols as specified in ICD-106.						
<b>CT</b>	F-CMS-10255								<u>verified</u>	
<b>CC</b>	F-CMS-10410	2198	B	If the size of the ATC load is greater than the available space in the SCC stored command table, the EOC shall provide the capability to partition the load.	The available space in the SCC stored command table consists of the locations in the table between the first available location and the last available location. The first available location in the table is the location immediately following the last command of the previous load. The last available location in the table is the location immediately preceding the first command in	functional		test		

					the table which will not have been executed at the time the load is uplinked.					
<b>CT</b>	F-CMS-10410								<u>verified</u>	
<b>CC</b>	F-CMS-10420	2199	B	If the size of the ATC load is greater than 4K bytes, the EOC shall provide the capability to partition the load.		functional		test		
<b>CT</b>	F-CMS-10420								<u>verified</u>	
<b>CC</b>	F-CMS-10600	13120	B	The FOS shall allow a fixed minimum time spacing between an AM1 spacecraft or instrument load initiate command and the load data.	This spacing is only applicable for the original load transmission. The time spacing is not preserved for automated COP-1 retransmissions.	functional	approved	demo	<u>unverified</u>	97-0756
<b>CT</b>	F-CMS-10600								<u>verified</u>	
<b>CC</b>	F-CMS-10710	13704	A	The EOC shall generate SCC relative time commands which are consistent with the format	Each RTS sequence consists of a total of 177 words. An AM1 RTS contains 16 slots. Each slot contains an 11-word	functional	approved	test	<u>unverified</u>	97-1116

				specified in ICD-106.	command. Refer to ICD-106 for placement of Inhibit ID and command count. RTSs are in one table. The EOC shall create partial table loads for each RTS and determine where to place the RTS in this one table based on RTS number.					
<b>CT</b>	F-CMS-10710								<u>verified</u>	
<b>CC</b>	F-CMS-10720	2202	B	The EOC shall verify that the time tags associated with SCC relative time commands in an SCC RTCS load have a resolution of 1 second.		functional		test		
<b>CT</b>	F-CMS-10720								<u>verified</u>	
<b>CC</b>	F-CMS-10725	13119	B	The FOS shall fill unused trailing words of an AM1 RTS with zeroes.	Each AM1 RTS consists of 16 slots; unused slots are filled with zeroes.	functional	approved	demo	<u>unverified</u>	97-0756

<b>CT</b>	F-CMS-10725								<u>verified</u>	
<b>CC</b>	F-CMS-10730	2203	A	The EOC shall format RTS loads for uplink according to the CCSDS Telecommand packet protocols as specified in ICD-106.		functional		test		
<b>CT</b>	F-CMS-10730								<u>verified</u>	
<b>CC</b>	F-CMS-10740	13700	A	The EOC shall prepend a load initiate command to the RTS load.	The load initiate command includes the CRC, which is calculated by EOC software. The RTS table ID is 12. The CRC is the 16-bit CCSDS CRC.	functional	approved	test	<u>unverified</u>	97-1116
<b>CT</b>	F-CMS-10740								<u>verified</u>	
<b>CC</b>	F-CMS-11170	13117	B	The FOS shall use and maintain a standard set of AM1 load initiate mnemonics.		functional	approved	demo	<u>unverified</u>	97-0756
<b>CT</b>	F-CMS-11170								<u>verified</u>	
<b>CC</b>	F-CMS-11180	13118	B	The FOS shall load each element of a spacecraft or instrument table load in its entirety.	For example, if only 3 bits of a 16-bit word is used, the leading bits are zero-filled.	functional	approved	demo	<u>unverified</u>	97-0756

<b>CT</b>	F-CMS-11180								<u>verified</u>	
<b>CC</b>	F-CMS-11185	2206	A	The EOC shall format table loads for uplink according to the CCSDS Telecommand packet protocols as specified in ICD-106.		functional		test		
<b>CT</b>	F-CMS-11185								<u>verified</u>	
<b>CC</b>	F-CMS-11190	13709	A	The EOC shall prepend a load initiate command to the table load.	The load initiate includes the applicable CRC or checksum. SSST table loads use 16-bit checksum. All other spacecraft table loads use the 16-bit CCSDS CRC.	functional	approved	test	<del>unverified</del>	97-1116
<b>CT</b>	F-CMS-11190								<u>verified</u>	
<b>CC</b>	F-CMS-11310	2208	A	The EOC shall provide the capability to format CERES, MISR, MODIS, and MOPITT instrument microprocessor load content into 1553B messages.		functional		test		



<b>CT</b>	F-CMS-11310								<u>verified</u>	
<b>CC</b>	F-CMS-11320	13130	A	The EOC shall provide the capability to calculate the CRC for a MISR, MODIS, or MOPITT instrument microprocessor load.	MODIS & MOPITT loads use the 16-bit CCITT CRC. MISR loads use the 16-bit CCSDS CRC.	functional	approved	analysis	<u>unverified</u>	97-0756
<b>CT</b>	F-CMS-11320								<u>verified</u>	
<b>CC</b>	F-CMS-11330	13706	A	The EOC shall provide the capability to prepend the load initiate command, including the load descriptor, start address, word count, and CRC to a CERES, MISR, MODIS, or MOPITT instrument microprocessor load.	MODIS & MOPITT loads use the 16-bit CCITT CRC. MISR loads use the 16-bit CCSDS CRC. CERES CRCs are provided as part of the CERES load data; FOS does not calculate the CERES CRC.	functional	approved	test	<u>unverified</u>	97-1116
<b>CT</b>	F-CMS-11330								<u>verified</u>	
<b>CC</b>	F-CMS-11410	2212	B	The EOC shall format flight software loads for uplink according to		functional		test		

				the CCSDS Telecommand packet protocols as specified in ICD-106.						
<b>CT</b>	F-CMS-11410								<u>verified</u>	
<b>CC</b>	F-CMS-11420	13711	B	The EOC shall prepend a load initiate command to the flight software load.	The load initiate command includes the CRC, which is calculated by EOC software. GNC flight software loads use a 16-bit checksum in place of the CRC. All other AM1 flight software loads use the 16-bit CCSDS CRC.	functional	approved	test	<u>unverified</u>	97-1116
<b>CT</b>	F-CMS-11420								<u>verified</u>	
<b>CC</b>	F-CMS-11720	2215	B	The EOC shall provide the capability to generate a report of intermediate SUROM results based on a memory dump.		functional		test		
<b>CT</b>	F-CMS-11720								<u>verified</u>	
<b>CC</b>	F-DMS-00110	2069	A	The EOC shall accept		functional		inspection		

				housekeeping and engineering telemetry definitions.						
<b>CT</b>	F-DMS-00110								<u>verified</u>	
<b>CC</b>	F-DMS-00120	2070	A	The telemetry definitions shall contain the following information:a. telemetry packet processing definitionsb. discrete telemetry definitionsc. discrete state definitions - up to 16 ranges for each discrete parameterd. analog telemetry definitionse. red/yellow, delta limit definitions - up to four limit sets for each parameter may be definedf. linear engineering unit conversion		functional		inspection		

				definitions - up to four linear sets specified with up to 15 point pairs for each analog parameterg. polynomial engineering unit conversion definitions - up to four polynomial sets with up to the 7th order equations for each analog parameterh. derived parameter definitions - up to five input parameters in an equationi. context dependent definitions - up to 16 ranges may be specified for each parameterj. subsystem/in strument definitions						
<b>CT</b>	F-DMS-00120								<u>verified</u>	
<b>CC</b>	F-DMS-00130	2071	A	The EOC		functional		inspection		

				shall accept spacecraft and instrument command definitions.						
<b>CT</b>	F-DMS-00130								<u>verified</u>	
<b>CC</b>	F-DMS-00140	4961	A	The command definitions shall contain the following information:a . spacecraft command definitionsb. instrument command definitionsc. command criticalityd. telemetry verificatione. prerequisite state checkingf. command conversion instructionsg . memory mapping definitions h. table definitionsi. stored command indicator		functional		inspection		
<b>CT</b>	F-DMS-00140								<u>verified</u>	
<b>CC</b>	F-DMS-00150	2073	A	The EOC shall accept spacecraft and instrument		functional		inspection		

				activity definitions.						
<b>CT</b>	F-DMS-00150								<u>verified</u>	
<b>CC</b>	F-DMS-00160	12224	A	The activity definitions shall contain the following information: a. command listing b. parameter mapping definition c. parameter limit definitions	Activity definitions are used in support of planning & scheduling and command management. Activities may contain real-time commands, stored commands, ECL directives, and command procedure names. This includes label activities (i.e., activities that don't have commands associated with them). Parameter mapping definitions are the listing of command parameters (submnemonics) associated with the commands in the activity definition.	functional		inspection	<del>unverified</del>	97-0081A

<b>CT</b>	F-DMS-00160								<u>verified</u>	
<b>CC</b>	F-DMS-00170	11270	B	The EOC shall accept spacecraft and instrument constraint definitions.		functional	approved	inspection	<del>unverified</del>	96-0952A
<b>CT</b>	F-DMS-00170								<u>verified</u>	
<b>CC</b>	F-DMS-00180	12114	B	The constraint definitions shall contain the following information: a. spacecraft constraint definitions b. instrument constraint definitions c. operational mode transition definitions d. command timing and sequencing constraints	Telemetry, command, activity and constraint definitions are governed by the formats specified in the FOS PDB Data Format Control Document (DFCD). Command timing and sequencing constraints are performed at the subsystem/instrument level and at the command level. PAS assumes responsibility for s/c and instrument activity level temporal constraints and operational mode	functional	approved	inspection	<del>unverified</del>	97-0071A

					transition definitions. DMS remains responsible for all command level constraints.					
<b>CT</b>	F-DMS-00180								<u>verified</u>	
<b>CC</b>	F-DMS-00205	10292	B	The EOC shall provide authorized users the capability to add telemetry definitions to the PDB.	Authorized users are those persons given data base privileges such as the data base administrator.	functional	approved	demo		
<b>CT</b>	F-DMS-00205								<u>verified</u>	
<b>CC</b>	F-DMS-00210	10293	B	The EOC shall provide authorized users the capability to delete telemetry definitions maintained in the PDB.		functional	approved	demo		
<b>CT</b>	F-DMS-00210								<u>verified</u>	
<b>CC</b>	F-DMS-00215	10294	B	The EOC shall provide authorized users the capability to modify telemetry definitions maintained in the PDB.		functional	approved	demo		
<b>CT</b>	F-DMS-00215								<u>verified</u>	
<b>CC</b>	F-DMS-00220	10295	B	The EOC		functional	approved	demo		



				shall provide authorized users the capability to add command definitions to the PDB.						
<b>CT</b>	F-DMS-00220								<u>verified</u>	
<b>CC</b>	F-DMS-00225	10296	B	The EOC shall provide authorized users the capability to delete command definitions maintained in the PDB.		functional	approved	demo		
<b>CT</b>	F-DMS-00225								<u>verified</u>	
<b>CC</b>	F-DMS-00230	10297	B	The EOC shall provide authorized users the capability to modify command definitions maintained in the PDB.		functional	approved	demo		
<b>CT</b>	F-DMS-00230								<u>verified</u>	
<b>CC</b>	F-DMS-00231	10631	B	The EOC shall provide authorized users the capability to add binary patterns to the hazardous command definitions maintained		functional   operational	approved	test		

				in the PDB.						
<b>CT</b>	F-DMS-00231								<u>verified</u>	
<b>CC</b>	F-DMS-00233	10633	B	The EOC shall provide authorized users the capability to delete binary patterns to the hazardous command definitions maintained in the PDB.		functional   operational	approved	test		
<b>CT</b>	F-DMS-00233								<u>verified</u>	
<b>CC</b>	F-DMS-00235	12117	B	The EOC shall provide authorized users the capability to add activity definitions to the PDB.	PAS has assumed responsibility for this requirement.	functional	approved	demo	<u>unverified</u>	97-0071A
<b>CT</b>	F-DMS-00235								<u>verified</u>	
<b>CC</b>	F-DMS-00240	12119	B	The EOC shall provide authorized users the capability to delete activity definitions maintained in the PDB.	PAS has assumed responsibility for this requirement.	functional	approved	demo	<u>unverified</u>	97-0071A
<b>CT</b>	F-DMS-00240								<u>verified</u>	
<b>CC</b>	F-DMS-00245	12121	B	The EOC shall provide authorized users the capability to modify	PAS has assumed responsibility for this requirement.	functional	approved	demo	<u>unverified</u>	97-0071A

				activity definitions maintained in the PDB.						
<b>CT</b>	F-DMS-00245								<u>verified</u>	
<b>CC</b>	F-DMS-00250	12124	B	The EOC shall provide authorized users the capability to add constraint definitions to the PDB.	PAS assumes responsibility for activity level constraint definitions.	functional	approved	demo	<del>unverified</del>	97-0071A
<b>CT</b>	F-DMS-00250								<u>verified</u>	
<b>CC</b>	F-DMS-00255	12128	B	The EOC shall provide authorized users the capability to delete constraint definitions maintained in the PDB.	PAS assumes responsibility for activity level constraint definitions.	functional	approved	demo	<del>unverified</del>	97-0071A
<b>CT</b>	F-DMS-00255								<u>verified</u>	
<b>CC</b>	F-DMS-00260	12138	B	The EOC shall provide authorized users the capability to modify constraint definitions maintained in the PDB.	PAS assumes responsibility for activity level constraint definitions.	functional	approved	demo	<del>unverified</del>	97-0071A
<b>CT</b>	F-DMS-00260								<u>verified</u>	
<b>CC</b>	F-DMS-00310	2092	A	The EOC shall provide the capability to perform		functional		demo		

[illegible]

<b>CC</b>	F-DMS-00410	10303	B	The FOS shall provide for authorized users the capability to report information maintained in the PDB.		functional	approved	inspection		
<b>CT</b>	F-DMS-00410								<u>verified</u>	
<b>CC</b>	F-DMS-00610	2104	A	The EOC shall provide for operational use of the telemetry PDB definitions.		functional		demo		
<b>CT</b>	F-DMS-00610								<u>verified</u>	
<b>CC</b>	F-DMS-00620	2105	A	The EOC shall provide for operational use of the command PDB definitions.		functional		demo		
<b>CT</b>	F-DMS-00620								<u>verified</u>	
<b>CC</b>	F-DMS-00630	11275	B	The EOC shall provide for operational use of the activity PDB definitions.		functional	approved	demo	<u>unverified</u>	96-0952A
<b>CT</b>	F-DMS-00630								<u>verified</u>	
<b>CC</b>	F-DMS-00640	10310	B	The EOC shall provide for operational use of the		functional	approved	demo		

				constraint PDB definitions.						
<b>CT</b>	F-DMS-00640								<u>verified</u>	
<b>CC</b>	F-DMS-00650	10311	B	The operational data shall contain a version number and date of generation.		functional	approved	inspection		
<b>CT</b>	F-DMS-00650								<u>verified</u>	
<b>CC</b>	F-DMS-00710	2109	A	The EOC shall archive all telemetry data.		functional		inspection		
<b>CT</b>	F-DMS-00710								<u>verified</u>	
<b>CC</b>	F-DMS-00720	10312	B	The EOC shall maintain the telemetry data on-line for a minimum of 7 days.		functional	approved	inspection		
<b>CT</b>	F-DMS-00720								<u>verified</u>	
<b>CC</b>	F-DMS-00730	10313	B	The EOC shall archive telemetry in chronologica l order.		functional	approved	inspection		
<b>CT</b>	F-DMS-00730								<u>verified</u>	
<b>CC</b>	F-DMS-00780	13208	B	The FOS shall provide the capability to replay archived telemetry at user selectable		functional	approved	demo	<del>unverified</del>	97-0723A

				rates.						
<b>CT</b>	F-DMS-00780								<u>verified</u>	
<b>CC</b>	F-DMS-00810	10316	B	The EOC shall archive all ground-telemetry data.		functional	approved	inspection		
<b>CT</b>	F-DMS-00810								<u>verified</u>	
<b>CC</b>	F-DMS-00820	10317	B	The EOC shall maintain the ground-telemetry data on-line for a minimum of 7 days.		functional	approved	inspection		
<b>CT</b>	F-DMS-00820								<u>verified</u>	
<b>CC</b>	F-DMS-00830	10318	B	The EOC shall archive ground-telemetry in chronological order.		functional	approved	demo		
<b>CT</b>	F-DMS-00830								<u>verified</u>	
<b>CC</b>	F-DMS-00910	2121	A	The EOC shall archive all event messages.	Duplicated events will not be archived (i.e. telemetry limit events from multiple workstations).	functional		inspection		
<b>CT</b>	F-DMS-00910								<u>verified</u>	
<b>CC</b>	F-DMS-00920	10320	B	The EOC shall maintain events data on-line for a minimum of 7 days.		functional	approved	inspection		
<b>CT</b>	F-DMS-00920								<u>verified</u>	
<b>CC</b>	F-DMS-00940	2124	A	The EOC		functional		demo		

				shall retrieve event messages in chronological order.						
<b>CT</b>	F-DMS-00940								<u>verified</u>	
<b>CC</b>	F-DMS-01010	4966	A	The EOC shall be capable of storing data files.	This requirement will be used for disk sizing.	functional		inspection		
<b>CT</b>	F-DMS-01010								<u>verified</u>	
<b>CC</b>	F-DMS-01021	13165	B	The EOC shall be capable of retrieving the following data files from the FOS archive.a. View period information for backup Ground Stations.b. (deleted).c. Spacecraft Contact Session (SCS) Summary Report.		functional	approved	test	<u>unverified</u>	97-0716A
<b>CT</b>	F-DMS-01021								<u>verified</u>	
<b>CC</b>	F-DMS-01150	2131	B	The EOC shall provide 2 days of storage for staging long-term telemetry data.	This requirement will be used for disk sizing. Long-term telemetry data is data that is	functional		demo		



					retrieved from the SDPS.					
<b>CT</b>	F-DMS-01150								<u>verified</u>	
<b>CC</b>	F-DMS-01210	2132	A	The FOS shall provide the capability to generate event messages.		functional		demo		
<b>CT</b>	F-DMS-01210								<u>verified</u>	
<b>CC</b>	F-DMS-01220	2133	A	The FOS event messages shall include the following:a. UTC time tagb. Event typec. Event Identifierd. Event messagee. Spacecraft Identifier (if applicable)f. Instrument Identifier (if applicable)		functional		demo		
<b>CT</b>	F-DMS-01220								<u>verified</u>	
<b>CC</b>	F-DMS-01290	12960	B	The FOS shall provide the capability to generate either local or global events.	Local events are displayed only for the user (IST or USER Station) that's involved in a "dedicated service" (e.g., dedicated replay of other standalone	functional	approved	demo	<u>unverified</u>	97-0460

					operations); Global events are multicast to all ISTs and User Stations.					
<b>CT</b>	F-DMS-01290								<u>verified</u>	
<b>CC</b>	F-DMS-01310	4976	A	The EOC shall provide the capability to input ground telemetry definitions.	Ground telemetry consists of EDOS, NCC and user defined definitions. This requirement allows for status information to be displayed for EDOS, NCC, and user defined ground telemetry. Examples of user defined ground telemetry are number of workstations, prime and backup information, and string information.	functional		inspection		
<b>CT</b>	F-DMS-01310								<u>verified</u>	
<b>CC</b>	F-DMS-01320	4977	A	The EOC shall provide the capability to validate ground	Ground telemetry consists of EDOS, NCC and user defined	functional		inspection		

				telemetry definitions.	definitions.					
<b>CT</b>	F-DMS-01320								<u>verified</u>	
<b>CC</b>	F-DMS-01330	4978	A	The EOC shall provide for operational use of validated ground telemetry definitions.	Ground telemetry consists of EDOS, NCC and user defined definitions.	functional		inspection		
<b>CT</b>	F-DMS-01330								<u>verified</u>	
<b>CC</b>	F-DMS-01405	13055	B	The FOS shall provide the capability to search the load catalog based on the any of the load catalog fields.	Load catalog fields include but are not limited to the load name, the load type, the valid uplink period, the scheduled uplink times, the actual uplink time, and the spacecraft subsystem.	functional	approved	demo	<u>unverified</u>	97-0645A
<b>CT</b>	F-DMS-01405								<u>verified</u>	
<b>CC</b>	F-DMS-01475	12966	B	The EOC shall obtain the Long Term Science Plan (LTSP).	The LTSP will be downloaded from an SMC web page.	interface	approved	demo	<u>unverified</u>	97-0521
<b>CT</b>	F-DMS-01475								<u>verified</u>	
<b>CC</b>	F-DMS-01480	12967	B	The EOC shall obtain the Long Term Instrument Plan (LTIP).	The LTIP will be downloaded from an SMC web page.	interface	approved	demo	<u>unverified</u>	97-0521

<b>CT</b>	F-DMS-01480								<u>verified</u>	
<b>CC</b>	F-DMS-10720	9854	B	The EOC shall produce an event message stating that it has received trash buffer data from EDOS.		functional		test		
<b>CT</b>	F-DMS-10720								<u>verified</u>	
<b>CC</b>	F-DMS-11010	9855	B	The EOC shall be capable of providing a listing of the trash buffer data files received from EDOS.		functional		test		
<b>CT</b>	F-DMS-11010								<u>verified</u>	
<b>CC</b>	F-DMS-11030	13114	B	The FOS shall provide the capability to archive AM1 activity log messages.		functional	approved	demo	<u>unverified</u>	97-0753A
<b>CT</b>	F-DMS-11030								<u>verified</u>	
<b>CC</b>	F-FOS-00010	13209	B	The EOC shall use and support the Space Network (SN), via the EDOS/EBnet interface, to obtain the forward and return link data communicati		interface	approved	test	<u>unverified</u>	97-0718A

				ons needed to achieve full FOS functionality.						
<b>CT</b>	F-FOS-00010								<u>verified</u>	
<b>CC</b>	F-FOS-00015	13210	B	The EOC shall use and support the S-band contingency ground stations, via the EDOS/EBnet /Nascom interface, as backup of the SN, to obtain forward and return link data communications.		interface	approved	test	<del>unverified</del>	97-0718A
<b>CT</b>	F-FOS-00015								<u>verified</u>	
<b>CC</b>	F-FOS-00020	13211	B	The EOC shall use and support the EDOS/EBnet interface to obtain the data formatting services, data distribution services, and data quality and accounting services needed to achieve full		interface	approved	test	<del>unverified</del>	97-0718A

				FOS functionality.						
<b>CT</b>	F-FOS-00020								<u>verified</u>	
<b>CC</b>	F-FOS-00035	961	B	The EOC shall provide a test mode of operation that does not interfere with ongoing operations, and which supports independent FOS and subsystem tests, end-to-end tests, and integration and verification activities occurring during at a minimum:a. Spacecraft and instrument integration and testb. Pre-launchc. Upgrades and enhancements		functional		demo		
<b>CT</b>	F-FOS-00035								<u>verified</u>	
<b>CC</b>	F-FOS-00040	962	B	The EOC shall have the capability to schedule its systems and	The scheduling requirement will be implemented through	functional		demo		

				communications interfaces that are used for multiple spacecraft and instrument operations and for other activities, including maintenance, upgrade, sustaining engineering, testing, and training.	operations at the EOC.					
<b>CT</b>	F-FOS-00040								<u>verified</u>	
<b>CC</b>	F-FOS-00045	13144	B	The EOC shall participate in the scheduling of interface and end-to-end tests with the external elements involved, including the IP-ICCs, the spacecraft simulator(s), and EDOS for MO&DSD data delivery systems.	The scheduling requirement will be implemented through operations at the EOC.	procedural	approved	test	<u>unverified</u>	97-0722
<b>CT</b>	F-FOS-00045								<u>verified</u>	
<b>CC</b>	F-FOS-00070	964	B	The EOC shall		functional		demo		

				manage initialization and shutdown of EOC functions.						
<b>CT</b>	F-FOS-00070								<u>verified</u>	
<b>CC</b>	F-FOS-00075	965	B	The EOC shall provide tests for validating, verifying, and checking functional capabilities and performance for EOC functions after the EOC has been repaired or upgraded.		functional		demo		
<b>CT</b>	F-FOS-00075								<u>verified</u>	
<b>CC</b>	F-FOS-00080	966	B	The EOC shall provide standard test data sets to be used in the validation of EOC function.		functional		inspection		
<b>CT</b>	F-FOS-00080								<u>verified</u>	
<b>CC</b>	F-FOS-00085	10326	B	The EOC shall support instrument integration activities associated with the		functional	approved	test		



				spacecraft prior to launch.						
<b>CT</b>	F-FOS-00085								<u>verified</u>	
<b>CC</b>	F-FOS-00098	970	B	The EOC shall provide the capabilities:a . To test both nominal operations and failure pathsb. To log test activities and test configuration c. To support analysis of test data and the generation of test resultsd. To maintain test procedures and test results		functional		demo		
<b>CT</b>	F-FOS-00098								<u>verified</u>	
<b>CC</b>	F-FOS-00115	972	B	The EOC shall provide the following to be used in the revalidation of its functional performance :a. Benchmark test(s)b. Standard test data		functional		inspection		

				sets.						
<b>CT</b>	F-FOS-00115								<u>verified</u>	
<b>CC</b>	F-FOS-00120	973	B	The EOC shall provide access to the following items used in the checkout and verification process:a. Stored test data setsb. Stored test plansc. Stored test procedures.		functional		inspection		
<b>CT</b>	F-FOS-00120								<u>verified</u>	
<b>CC</b>	F-FOS-00125	974	B	The EOC shall be able to validate at any time during the life-time of the ECS that the EOC primary functional performance is consistent with pre-defined operational benchmark tests.		functional		demo		
<b>CT</b>	F-FOS-00125								<u>verified</u>	
<b>CC</b>	F-FOS-00130	975	B	The EOC shall be capable of verifying the fidelity of the EOC		interface		test		

				interface to:a. Other ECS components at any time during the lifetime of the ECSb. Entities external to ECS at any time during the lifetime of the ECS						
<b>CT</b>	F-FOS-00130								<u>verified</u>	
<b>CC</b>	F-FOS-00140	976	B	The EOC shall provide a set of real or simulated functions which interfaces with both ECS internal and external entities for use in the following types of test:a. FOS Subsystems b. EOCc. ECS System (integration of ECS components) d. EOSDIS System (Integration of EOSDIS components)		functional		demo		
<b>CT</b>	F-FOS-00140								<u>verified</u>	
<b>CC</b>	F-FOS-00145	977	B	The EOC		functional		test		

				shall support end-to-end EOS system testing and fault isolation.						
<b>CT</b>	F-FOS-00145								<u>verified</u>	
<b>CC</b>	F-FOS-00155	978	B	The EOC shall be capable of supporting end-to-end test and verification activities of the EOS program including during the pre-launch, spacecraft verification, and instrument verification phases.		functional		test		
<b>CT</b>	F-FOS-00155								<u>verified</u>	
<b>CC</b>	F-FOS-00220	983	B	The EOC shall support the following simultaneous activities:a. Performing mission coordination, planning, scheduling, monitoring, and commanding of the U.S. spacecraft and		functional		demo		

				instruments as listed in Appendix D of the ECS Functional and Performance Specification .b. At least two of the following: mission test activities, EOC system upgrades, training, and/or maintenance .						
<b>CT</b>	F-FOS-00220								<u>verified</u>	
<b>CC</b>	F-FOS-00225	984	B	The EOC computer hardware shall be able to grow without redesign to twice the processing, storage, and network communications capacities estimated for full system operation.		functional		analysis		
<b>CT</b>	F-FOS-00225								<u>verified</u>	
<b>CC</b>	F-FOS-00245	4955	B	The EOC shall provide time accuracy of 500	The time accuracy pertains to the accuracy of the computer	performance		analysis		

				milliseconds.	clocks in the EOC network with respect to one another and the time source.					
<b>CT</b>	F-FOS-00245								<u>verified</u>	
<b>CC</b>	F-FOS-00308	12955	B	The FOS shall provide the capability for an EOC operator to remotely login to the Spacecraft Simulator to access simulator displays.		interface	approved	demo	<u>unverified</u>	97-0461
<b>CT</b>	F-FOS-00308								<u>verified</u>	
<b>CC</b>	F-FOS-00310	988	B	The EOC shall receive simulated spacecraft and instrument telemetry from the EOS spacecraft simulators.	Reference the Interface Control Document between the EOC and Spacecraft Simulator for specifics pertaining to this interface.	interface		test		
<b>CT</b>	F-FOS-00310								<u>verified</u>	
<b>CC</b>	F-FOS-00315	989	B	The EOC shall provide commands to the EOS spacecraft simulators.	Reference the Interface Control Document between the EOC and Spacecraft Simulator for specifics	interface		test		

					pertaining to this interface.					
<b>CT</b>	F-FOS-00315								<u>verified</u>	
<b>CC</b>	F-FOS-00320	13212	B	The EOC shall use Ebnet for data communications for the following types of data:a. Real-time telemetry data, rate-buffered telemetry datab. Command datac. TDRSS schedule requests and TDRSS schedulesd. Data exchange with the FDF, NCC and EDOS	Reference the Interface Control Document between the EOC and Ebnet for specifics pertaining to this interface.	interface	approved	test	<u>unverified</u>	97-0718A
<b>CT</b>	F-FOS-00320								<u>verified</u>	
<b>CC</b>	F-FOS-00322	12956	B	The FOS shall provide the capability for an EOC operator to remotely login to an Flight Dynamics Division (FDD)		interface	approved	demo	<u>unverified</u>	97-0461

[illegible]



<b>CC</b>	F-FOS-00340	11286	B	The EOC elements shall submit TDRSS schedule requests and Ground Configuration Message Requests to the NCC.	Reference the Interface Control Document between the NCCDS and GSFC MOCs for specifics pertaining to this interface.	interface	approved	test	<del>unverified</del>	96-0952A
<b>CT</b>	F-FOS-00340								<u>verified</u>	
<b>CC</b>	F-FOS-00350	11287	B	The EOC shall receive telemetry data from EDOS, including real-time and rate-buffered housekeeping and engineering data from EOS instruments and spacecraft.	Reference the Interface Control Document between the EOC and EDOS for specifics pertaining to this interface.	interface	approved	test	<del>unverified</del>	96-0952A
<b>CT</b>	F-FOS-00350								<u>verified</u>	
<b>CC</b>	F-FOS-00430	10329	B	The FOS shall require a unique user identification and password for each individual user.		functional	approved	test		
<b>CT</b>	F-FOS-00430								<u>verified</u>	
<b>CC</b>	F-FOS-00490	13071	B	The EOC shall provide		functional	approved	demo	<del>unverified</del>	97-0717

				for security safeguards to cover unscheduled system shutdown (aborts) and subsequent restarts, as well as for scheduled system shutdown and operational startup.						
<b>CT</b>	F-FOS-00490								<u>verified</u>	
<b>CC</b>	F-FOS-00500	1013	B	FOS functions shall have an operational availability of 0.96 at a minimum (.998 design goal) and an MDT of four (4) hours or less (1.5 hour design goal), unless otherwise specified.	The above requirement covers equipment including: a. "Non-critical" equipment configured with the critical equipment supporting the functional capabilities in the requirements b. Equipment providing other functionality not explicitly stated in the RMS requirements that follow.	performance		analysis		

<b>CT</b>	F-FOS-00500								<u>verified</u>	
<b>CC</b>	F-FOS-00505	1014	B	The FOS shall have an operational availability of 0.9998 at a minimum (.99997 design goal) and an MDT of one (1) minute or less (0.5 minute design goal) for critical real-time functions that support:a. Launchb. Early orbit checkoutc. Orbit adjustmentd. Anomaly investigatione. Recovery from safe modef. Routine real-time commanding and associated monitoring for spacecraft and instrument health and safety		performance		analysis		

<b>CT</b>	F-FOS-00505								<u>verified</u>	
<b>CC</b>	F-FOS-00515	1016	B	The FOS shall have an operational availability of 0.99925 at a minimum (.99997 design goal) and an MDT of five (5) minutes or less (0.5 minute design goal) for non-critical real-time functions.		performance		analysis		
<b>CT</b>	F-FOS-00515								<u>verified</u>	
<b>CC</b>	F-FOS-00520	1017	B	The FOS shall have an operational availability of 0.992 at a minimum and a MDT of (1) hour or less for functions associated with Targets of Opportunity.		performance		analysis		
<b>CT</b>	F-FOS-00520								<u>verified</u>	
<b>CC</b>	F-FOS-00570	13508	B	The FOS Data Server shall startup and initialize within 5 minutes.		performance	approved	test	<u>unverified</u>	97-0967

<b>CT</b>	F-FOS-00570								<u>verified</u>	
<b>CC</b>	F-FOS-10150	13014	B	The EOC shall use and support the AM-1 Backup Ground Station, as a backup of the SN, to obtain return link (X-band) support.	Support includes the ability to schedule x-band contacts on the FOS mission schedule.	interface	approved	test	<u>unverified</u>	97-0518B
<b>CT</b>	F-FOS-10150								<u>verified</u>	
<b>CC</b>	F-FOS-10305	12957	B	The FOS shall provide the capability for an EOC operator to remotely login to the AM1 Spacecraft Analysis System (SAS) to access analysis displays.		interface	approved	demo	<u>unverified</u>	97-0461
<b>CT</b>	F-FOS-10305								<u>verified</u>	
<b>CC</b>	F-FUI-01100	1670	A	The FOS shall provide access to all room definitions in the system.		functional		demo		
<b>CT</b>	F-FUI-01100								<u>verified</u>	
<b>CC</b>	F-FUI-01105	1671	A	The FOS shall provide the capability to define a		functional		test		

				room.						
<b>CT</b>	F-FUI-01105								<u>verified</u>	
<b>CC</b>	F-FUI-01110	1672	A	The FOS shall provide the capability to modify a room.		functional		test		
<b>CT</b>	F-FUI-01110								<u>verified</u>	
<b>CC</b>	F-FUI-01130	1676	A	The FOS shall allow a window to belong to more than one room.		functional		demo		
<b>CT</b>	F-FUI-01130								<u>verified</u>	
<b>CC</b>	F-FUI-01135	1677	A	The FOS shall allow windows to overlap each other.		functional		demo		
<b>CT</b>	F-FUI-01135								<u>verified</u>	
<b>CC</b>	F-FUI-01140	1678	A	The FOS shall allow a window to have a name.		functional		demo		
<b>CT</b>	F-FUI-01140								<u>verified</u>	
<b>CC</b>	F-FUI-01145	1679	A	The FOS shall provide the capability to define the default position and size of each of the windows in a room.		functional		test		
<b>CT</b>	F-FUI-01145								<u>verified</u>	
<b>CC</b>	F-FUI-01150	10339	B	The FOS shall provide		functional	approved	test		

				the capability to define the tiled position and size of each of the windows in a room.						
<b>CT</b>	F-FUI-01150								<u>verified</u>	
<b>CC</b>	F-FUI-01155	11574	A	The FOS shall provide the capability to add windows to a room dynamically.		functional	approved	test	<u>unverified</u>	96-1082A
<b>CT</b>	F-FUI-01155								<u>verified</u>	
<b>CC</b>	F-FUI-01160	1682	A	The FOS shall provide the capability to delete windows from a room dynamically.		functional		test		
<b>CT</b>	F-FUI-01160								<u>verified</u>	
<b>CC</b>	F-FUI-01165	1683	A	The FOS shall provide the capability to switch from one room to another dynamically.		functional		demo		
<b>CT</b>	F-FUI-01165								<u>verified</u>	
<b>CC</b>	F-FUI-01170	9276	B	The FOS shall provide the capability to dynamically reposition windows in a		functional		demo		

				room.						
<b>CT</b>	F-FUI-01170								<u>verified</u>	
<b>CC</b>	F-FUI-01175	9277	B	The FOS shall provide the capability to dynamically resize windows in a room.		functional		demo		
<b>CT</b>	F-FUI-01175								<u>verified</u>	
<b>CC</b>	F-FUI-01185	12974	B	The FOS shall provide the capability to indicate the string identifier(s) for windows displaying real-time, playback, simulated, event history and multiple source data for all users.	Rooms will not interfere with the host computer's window manager. rooms will not interfere with other processes running on the host computer.	functional	approved	test	<u>unverified</u>	97-0524A
<b>CT</b>	F-FUI-01185								<u>verified</u>	
<b>CC</b>	F-FUI-01235	12972	B	The FOS shall, upon user login, load the following default settings:a. default printerb. default data directoriesc. (deleted)d. default real-time color intensitiese.		functional	approved	demo	<u>unverified</u>	97-0525A



				default window colorsf. default font stylesg. default room selections						
<b>CT</b>	F-FUI-01235								<u>verified</u>	
<b>CC</b>	F-FUI-01305	1696	A	The FOS shall contain a command line area that allows the user to issue directives from a workstation keyboard.	Detailed requirements for the directives are discussed in section 9.1.1.5.	functional		test		
<b>CT</b>	F-FUI-01305								<u>verified</u>	
<b>CC</b>	F-FUI-01315	10343	A	The FOS shall allow the user access to the following capabilities:a. user specified roomsb. a list of available roomsc. a list of available windowsd. additional tools (i.e., environment setup)e. procedures		functional	approved	test		
<b>CT</b>	F-FUI-01315								<u>verified</u>	
<b>CC</b>	F-FUI-01320	1699	A	The FOS shall provide an area that		functional		test		

				displays the three most recent event messages sent to the user.						
<b>CT</b>	F-FUI-01320								<u>verified</u>	
<b>CC</b>	F-FUI-01325	1700	A	The FOS shall enable the user to filter event messages according to the type of event.		functional		test		
<b>CT</b>	F-FUI-01325								<u>verified</u>	
<b>CC</b>	F-FUI-01330	1701	A	The FOS shall allow the user to initiate functions from a control window using a pointing device.		functional		test		
<b>CT</b>	F-FUI-01330								<u>verified</u>	
<b>CC</b>	F-FUI-01335	12220	A	The FOS shall allow the user to perform typical windowing desktop control with the pointing device, including:a. window focus selectionb. window	The FOS intends on providing an "undo" capability where applicable.Item c.: Window resizing capability is provided for most windows. Window resizing will	functional		test	<u>unverified</u>	97-0078A

				movement. window resizingd. window closinge. window iconifying	only be applicable in cases where the resize does not interfere with the functionality provided by the window.Some tools provided by FOS contain complex widgets that cannot be resized without impairingthe functionality provided by these tools.					
<b>CT</b>	F-FUI-01335								<u>verified</u>	
<b>CC</b>	F-FUI-01400	1703	B	The FOS shall provide a login screen that allows a user to enter a user name and password.		security		test		
<b>CT</b>	F-FUI-01400								<u>verified</u>	
<b>CC</b>	F-FUI-01405	1704	B	The FOS shall allow a user to specify a user type (e.g., CAC, OLE, PI/TL, etc.) for the current login		functional		test		

				session.						
<b>CT</b>	F-FUI-01405								<u>verified</u>	
<b>CC</b>	F-FUI-01410	1705	B	The FOS shall allow a user to have one or more user types.	A user may be specified as only one user type at any given time.	functional		test		
<b>CT</b>	F-FUI-01410								<u>verified</u>	
<b>CC</b>	F-FUI-01415	1706	B	The FOS shall allow a user to switch to an alternate user type during a session.	Users will be assigned one or more user types by the PI/TL (IST sites) or EOC Manager (EOC). A user may switch between these assigned user types during a session.	functional		test		
<b>CT</b>	F-FUI-01415								<u>verified</u>	
<b>CC</b>	F-FUI-01425	1708	B	The EOC shall provide the capability for an EOC Manager to enter a list of authorized EOC users.	The available EOC user types will be: operations coordinator, ops controller/shift supervisor, ground controller, spacecraft activity controller, instrument evaluator/controller, spacecraft evaluator,	security		test		

					flight systems engineer, spacecraft engineer, instrument engineer, mission planner/supervisor, command management analyst, spacecraft planner, instrument planner, ground systems engineer, system specialist, database manager, and software maintenance engineer.					
<b>CT</b>	F-FUI-01425								<u>verified</u>	
<b>CC</b>	F-FUI-01435	10345	B	The EOC shall provide the capability for an EOC Manager to delete EOC users from the system.		security	approved	test		
<b>CT</b>	F-FUI-01435								<u>verified</u>	
<b>CC</b>	F-FUI-01445	1712	B	The EOC shall provide the capability for an EOC Manager to		functional		test		

				change the user types for EOC users in the system.						
<b>CT</b>	F-FUI-01445								<u>verified</u>	
<b>CC</b>	F-FUI-01515	1716	A	The FOS shall allow a user to specify a conditional construct within a procedure.	Conditional constructs include a switch-case structure and an if-then-else structure.	functional		test		
<b>CT</b>	F-FUI-01515								<u>verified</u>	
<b>CC</b>	F-FUI-01520	4843	A	The FOS shall allow the nesting of conditional constructs.		functional		test		
<b>CT</b>	F-FUI-01520								<u>verified</u>	
<b>CC</b>	F-FUI-01525	1718	A	The FOS shall allow a user to specify iterative loop constructs within a procedure. The loop constructs shall include:a. while loop (test condition prior to entering loop)b. until loop (test condition at the end of		functional		test		

				the loop)c. for loop (includes an initialization expression, a conditional expression used to terminate the loop, and a loop expression that is executed at the end of each loop iteration)						
<b>CT</b>	F-FUI-01525								<u>verified</u>	
<b>CC</b>	F-FUI-01530	1719	A	The FOS shall allow the nesting of loop constructs.		functional		test		
<b>CT</b>	F-FUI-01530								<u>verified</u>	
<b>CC</b>	F-FUI-01535	1720	A	The FOS shall be capable of prematurely terminating conditional loop execution (i.e., procedure execution jumps to the first directive following the end of the loop).		functional		test		
<b>CT</b>	F-FUI-01535								<u>verified</u>	
<b>CC</b>	F-FUI-01538	4990	A	The FOS shall allow a	This includes spacecraft	functional		test		

				procedure to reference telemetry parameters.	and ground telemetry.					
<b>CT</b>	F-FUI-01538								<u>verified</u>	
<b>CC</b>	F-FUI-01540	1721	A	The FOS shall allow a user to specify temporary variables within a procedure.		functional		test		
<b>CT</b>	F-FUI-01540								<u>verified</u>	
<b>CC</b>	F-FUI-01550	1723	A	The FOS shall allow a user to specify comments within a procedure.		functional		test		
<b>CT</b>	F-FUI-01550								<u>verified</u>	
<b>CC</b>	F-FUI-01555	1724	A	The FOS shall allow a user to define labels within a procedure.		functional		test		
<b>CT</b>	F-FUI-01555								<u>verified</u>	
<b>CC</b>	F-FUI-01560	1725	A	The FOS shall allow a user to specify a jump to a labeled statement within a procedure.		functional		test		
<b>CT</b>	F-FUI-01560								<u>verified</u>	
<b>CC</b>	F-FUI-01565	10346	B	The FOS shall allow procedures		functional	approved	test		



				to invoke other procedures.						
<b>CT</b>	F-FUI-01565								<u>verified</u>	
<b>CC</b>	F-FUI-01570	1727	A	The FOS shall allow a procedure to accept arguments when invoked.		functional		test		
<b>CT</b>	F-FUI-01570								<u>verified</u>	
<b>CC</b>	F-FUI-01590	11866	A	The FOS shall allow the use of parentheses to group arithmetic and logical operations within a directive.	Parentheses have the highest precedence during the evaluation of arithmetic and logical operations.	functional		test	<u>unverified</u>	96-1358A
<b>CT</b>	F-FUI-01590								<u>verified</u>	
<b>CC</b>	F-FUI-01591	11867	A	The FOS shall provide built-in functions for use within a directive. These functions are defined in the following table.  ECL BUILT-IN FUNCTIONS  Function Name Description		functional		test	<u>unverified</u>	96-1358A

				acos trigonometric arc cosine function asin trigonometric arc sine function atan trigonometric arc tangent function cos trigonometric consine function sin trigonometric sine function tan trigonometric tangent function cosh hyperbolic consine function sinh hyperbolic sine function tanh hyperbolic tangent function exp exponential function log natural logarithm function log10 base-10					
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				logarithm function pow power function sqrt nonnegative square root function fabs returns the absolute value						
<b>CT</b>	F-FUI-01591								<u>verified</u>	
<b>CC</b>	F-FUI-01595	1732	A	The FOS shall initiate a directive within .5 seconds.		performance		test		
<b>CT</b>	F-FUI-01595								<u>verified</u>	
<b>CC</b>	F-FUI-01600	10348	B	The FOS shall provide the capability to specify the type of screen snap to perform, which includes:a. snap to a printerb. snap to a file		functional	approved	demo		
<b>CT</b>	F-FUI-01600								<u>verified</u>	
<b>CC</b>	F-FUI-01605	10349	B	The FOS shall provide the capability to snap a window.		functional	approved	demo		
<b>CT</b>	F-FUI-01605								<u>verified</u>	
<b>CC</b>	F-FUI-01620	9283	B	The FOS		functional		demo		

				shall provide the capability to select the font styles to be used from a predefined selection.						
<b>CT</b>	F-FUI-01620								<u>verified</u>	
<b>CC</b>	F-FUI-02100	1738	B	The FOS shall allow a quick message to contain a maximum of 240 characters.		functional		demo		
<b>CT</b>	F-FUI-02100								<u>verified</u>	
<b>CC</b>	F-FUI-02110	13110	B	The FOS shall visually delineate fatal quick messages from information, warning, and alarm quick messages.		functional	approved	demo	<u>unverified</u>	97-0754
<b>CT</b>	F-FUI-02110								<u>verified</u>	
<b>CC</b>	F-FUI-02115	12975	B	The FOS shall provide the following message types:a. fatalb. warningc. informationd. alarm		functional	approved	demo	<u>unverified</u>	97-0524A
<b>CT</b>	F-FUI-02115								<u>verified</u>	
<b>CC</b>	F-FUI-02200	1742	B	The FOS shall allow the user to		functional		test		

				send files from a user station or server.						
<b>CT</b>	F-FUI-02200								<u>verified</u>	
<b>CC</b>	F-FUI-02202	1743	B	The FOS shall allow users to delete files from their local storage area.		functional		test		
<b>CT</b>	F-FUI-02202								<u>verified</u>	
<b>CC</b>	F-FUI-02210	4992	B	The FOS shall allow the user to select files from available categories.		functional		demo		
<b>CT</b>	F-FUI-02210								<u>verified</u>	
<b>CC</b>	F-FUI-02215	1746	B	The FOS shall provide a find capability for selecting files.	The find capability allows the user to type in text, and highlights the closest alphabetic candidate.	functional		demo		
<b>CT</b>	F-FUI-02215								<u>verified</u>	
<b>CC</b>	F-FUI-02225	1748	B	The FOS shall provide a view of selected files to be sent.		functional		demo		
<b>CT</b>	F-FUI-02225								<u>verified</u>	
<b>CC</b>	F-FUI-02235	1750	B	The FOS shall allow the user to deselect files that were		functional		demo		

				selected.						
<b>CT</b>	F-FUI-02235								<u>verified</u>	
<b>CC</b>	F-FUI-02240	1751	B	The FOS shall provide a notification to the user that:a. a file transfer is in progressb. a file transfer has been completedc. a file transfer error has occurred		functional		demo		
<b>CT</b>	F-FUI-02240								<u>verified</u>	
<b>CC</b>	F-FUI-02300	12237	B	The FOS shall provide the user the capability to select a time range for the replay data to play, including:a. start timeb. stop timec. begin time	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	functional		demo	<u>unverified</u>	97-0075A
<b>CT</b>	F-FUI-02300								<u>verified</u>	
<b>CC</b>	F-FUI-02305	1754	B	The FOS shall provide the user the capability to select the replay rate.		functional		test		
<b>CT</b>	F-FUI-02305								<u>verified</u>	
<b>CC</b>	F-FUI-02310	12238	B	The FOS shall provide the means of stepping forward through the	Replay data includes telemetry, NCC UPD Messages, and EDOS	functional		test	<u>unverified</u>	97-0075A

				replay data by specifying the amount of time in seconds.	CODA Reports.					
<b>CT</b>	F-FUI-02310								<u>verified</u>	
<b>CC</b>	F-FUI-02315	12239	B	The FOS shall allow the user to pause the replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	functional		demo	<del>unverified</del>	97-0075A
<b>CT</b>	F-FUI-02315								<u>verified</u>	
<b>CC</b>	F-FUI-02320	12240	B	The FOS shall allow the user to resume the paused replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	functional		demo	<del>unverified</del>	97-0075A
<b>CT</b>	F-FUI-02320								<u>verified</u>	
<b>CC</b>	F-FUI-02325	1758	B	The FOS shall provide the user the capability to reset the begin time when the replay is in pause mode.		functional		test		
<b>CT</b>	F-FUI-02325								<u>verified</u>	
<b>CC</b>	F-FUI-02335	1760	B	The FOS shall provide the user a reset capability that will reset the replay time to the		functional		test		

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<b>CC</b>	F-FUI-02420	1764	B	The FOS shall provide the user with the capability to cancel document retrieval requests.		functional		demo		
<b>CT</b>	F-FUI-02420								<u>verified</u>	
<b>CC</b>	F-FUI-02425	1765	B	The FOS shall provide the user with the capability to open one or more document reader windows.		functional		demo		
<b>CT</b>	F-FUI-02425								<u>verified</u>	
<b>CC</b>	F-FUI-02430	1766	B	The FOS shall provide a history trace window that will keep track of where the user has been throughout a document viewing session.		functional		demo		
<b>CT</b>	F-FUI-02430								<u>verified</u>	
<b>CC</b>	F-FUI-02435	1767	B	The FOS shall provide the user with the capability to clear the document reader		functional		demo		

				history trace window.						
<b>CT</b>	F-FUI-02435								<u>verified</u>	
<b>CC</b>	F-FUI-02440	1768	B	The FOS shall provide the capability to input a document.		functional		test		
<b>CT</b>	F-FUI-02440								<u>verified</u>	
<b>CC</b>	F-FUI-02445	1769	B	The FOS shall provide the capability to update a document.		functional		test		
<b>CT</b>	F-FUI-02445								<u>verified</u>	
<b>CC</b>	F-FUI-02450	1770	B	The FOS shall provide the capability to delete a document.	The capability to input, update, and delete a document will be procedurally limited to the FOT document manager.	functional		test		
<b>CT</b>	F-FUI-02450								<u>verified</u>	
<b>CC</b>	F-FUI-02500	1771	B	The FOS shall provide an electronic mail (e-mail) capability.		functional		demo		
<b>CT</b>	F-FUI-02500								<u>verified</u>	
<b>CC</b>	F-FUI-02505	1772	B	The FOS shall allow the user to send an e-mail message to multiple		functional		test		

				destinations.						
<b>CT</b>	F-FUI-02505								<u>verified</u>	
<b>CC</b>	F-FUI-02510	1773	B	The FOS shall allow a destination to be designated either:a. a userb. a positionc. a site		functional		demo		
<b>CT</b>	F-FUI-02510								<u>verified</u>	
<b>CC</b>	F-FUI-02515	1774	B	The FOS shall allow the user to attach a file to an e-mail message.		functional		test		
<b>CT</b>	F-FUI-02515								<u>verified</u>	
<b>CC</b>	F-FUI-02520	1775	B	The FOS shall provide the user a simple editor for composing an e-mail message.		functional		demo		
<b>CT</b>	F-FUI-02520								<u>verified</u>	
<b>CC</b>	F-FUI-02530	1777	B	The FOS shall provide the user a method for replying to an e-mail message that was sent.		functional		demo		
<b>CT</b>	F-FUI-02530								<u>verified</u>	
<b>CC</b>	F-FUI-02535	1778	B	The FOS shall allow the user to list all		functional		demo		

				received messages.						
<b>CT</b>	F-FUI-02535								<u>verified</u>	
<b>CC</b>	F-FUI-02540	1779	B	The FOS shall allow the user to save an e-mail message.		functional		demo		
<b>CT</b>	F-FUI-02540								<u>verified</u>	
<b>CC</b>	F-FUI-02545	1780	B	The FOS shall allow the user to delete an e-mail message.		functional		demo		
<b>CT</b>	F-FUI-02545								<u>verified</u>	
<b>CC</b>	F-FUI-02600	10351	B	The FOS shall provide the user a palette of available widgets from which the user may dynamically build a real-time display.		functional	approved	demo		
<b>CT</b>	F-FUI-02600								<u>verified</u>	
<b>CC</b>	F-FUI-02605	10352	B	The FOS shall allow the user to drag widgets via the pointing device from the palette and drop them into the display.		functional	approved	demo		
<b>CT</b>	F-FUI-02605								<u>verified</u>	
<b>CC</b>	F-FUI-02610	12221	B	The FOS	Items n and o	functional		demo	<u>unverified</u>	97-0072

				shall provide a palette that shall include:a. labelb. fieldc. (deleted)d. (deleted)e. (deleted)f. graphg. tableh. deleted)i. (deleted)j. (deleted)k. data source.l. (deleted)m. (deleted)n. horizontal separatoro. vertical separatorp. schematic graphic items (point, line, icon, circle, rectangle, ellipse, and polygon)	are combined on the palette into a single separator object. The format for this object allows the user to select the orientation (vertical/horizontal).					
<b>CT</b>	F-FUI-02610								<u>verified</u>	
<b>CC</b>	F-FUI-02625	1787	A	The FOS shall allow the user to associate a telemetry value place holder and a descriptor/mnemonic place holder with a telemetry value.		functional		demo		

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<b>CC</b>	F-FUI-02725	10354	A	The FOS shall provide a help screen with the following navigational schemes:a. hypertext forwardb. hypertext trace backc. page forwardd. page backwarde. jump to home page (table of contents)f. search/find on a keyword	Hypertext trace back provides the ability to bring up help pages that the user previously viewed.	functional	approved	demo		
<b>CT</b>	F-FUI-02725								<u>verified</u>	
<b>CC</b>	F-FUI-02805	1798	A	The FOS shall provide an authorized user the capability to edit existing procedures.		functional		test		
<b>CT</b>	F-FUI-02805								<u>verified</u>	
<b>CC</b>	F-FUI-02810	1799	A	The FOS shall provide a user the capability to save procedures according to one of the following procedure types:a.	The following procedure types will be implemented for FOS:Emergency - a procedure that contains command directives that	functional		test		



				<div>emergencyb. commandc. groundd. locale. activityf. user-defined categories</div>	<div>perform an emergency operation (e.g., safe an instrument). The policy for classifying a procedure as an emergency procedure will be determined by the FOT.Comma nd - a non- emergency procedure that contains at least one command directive.Grou nd - a procedure that contains at least one ground system directive.Loca l - a procedure that contains no command or ground system directives.Acti vity - a procedure created as part of a Planning and Scheduling activity definition.Use</div>					
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					r-defined - a category type defined by the user.					
<b>CT</b>	F-FUI-02810								<u>verified</u>	
<b>CC</b>	F-FUI-02815	1800	A	The FOS shall provide a user the capability to save a procedure according to its spacecraft identifier.		functional		test		
<b>CT</b>	F-FUI-02815								<u>verified</u>	
<b>CC</b>	F-FUI-02820	1801	A	The FOS shall provide a user the capability to save a procedure according to its instrument identifier.	A procedure may be saved according to both its spacecraft and instrument identifiers (e.g., AM-1, CERES-Aft).	functional		test		
<b>CT</b>	F-FUI-02820								<u>verified</u>	
<b>CC</b>	F-FUI-02825	1802	A	The FOS shall provide a user the capability to identify the author of each procedure.		functional		test		
<b>CT</b>	F-FUI-02825								<u>verified</u>	
<b>CC</b>	F-FUI-02830	10355	B	The FOS shall verify that the procedure directives are	For example, a procedure containing a command directive cannot be	functional	approved	test		

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<b>CC</b>	F-FUI-02855	1808	A	The FOS shall display the current procedure syntax check status.	The syntax and validation status indicators will be saved with the procedure text when a save operation is performed.	functional		demo		
<b>CT</b>	F-FUI-02855								<u>verified</u>	
<b>CC</b>	F-FUI-02860	10357	B	The FOS shall provide a user the capability to request validation of procedures.	Procedures will be validated by the Command Management Subsystem. Validation status, including all errors detected, will be returned to the FUI Subsystem and displayed to the user.	functional	approved	demo		
<b>CT</b>	F-FUI-02860								<u>verified</u>	
<b>CC</b>	F-FUI-02865	1810	A	The FOS shall display the current procedure validation status.	The syntax and validation status indicators will be saved with the procedure text when a save operation is performed.	functional		demo		
<b>CT</b>	F-FUI-02865								<u>verified</u>	
<b>CC</b>	F-FUI-02870	1811	A	The FOS shall display a list of directive		functional		demo		

				keywords that the user may select from to build procedure directives.						
<b>CT</b>	F-FUI-02870								<u>verified</u>	
<b>CC</b>	F-FUI-02875	1812	A	The FOS shall display a list of directive keyword qualifiers that the user may select from to build procedure directives. The qualifier list will correspond to the selected keyword.		functional		demo		
<b>CT</b>	F-FUI-02875								<u>verified</u>	
<b>CC</b>	F-FUI-02880	1813	A	The FOS shall display a list of mnemonics descriptors that the user may select from to build procedure directives.		functional		demo		
<b>CT</b>	F-FUI-02880								<u>verified</u>	
<b>CC</b>	F-FUI-02885	1814	A	The FOS shall display a list of mnemonic qualifiers that the user may select	The qualifier list will correspond to the selected discrete mnemonic descriptor.	functional		demo		

				from to build procedure directives.						
<b>CT</b>	F-FUI-02885								<u>verified</u>	
<b>CC</b>	F-FUI-02890	1815	A	The FOS shall display a set of current limit values that the user may select from to build procedure directives.	The set of limit values will correspond to the selected analog mnemonic descriptor.	functional		demo		
<b>CT</b>	F-FUI-02890								<u>verified</u>	
<b>CC</b>	F-FUI-02895	1816	A	The FOS shall provide a user the capability to insert the following items into the procedure text:a. directive keywordsb. directive keyword qualifiersc. mnemonicsd . mnemonic qualifiers (for mnemonics with discrete values)e. limit identifiers (for mnemonics with analog values)	Four limit values will be displayed: high-red, high-yellow, low-yellow, and low-red. If the user selects one of these, a corresponding identifier (i.e., a symbolic constant such ad HIGH- RED) will be inserted into the procedure. This will allow the procedure to reference the proper limit value from the project data base when the procedure	functional		demo		

					is executed.					
<b>CT</b>	F-FUI-02895								<u>verified</u>	
<b>CC</b>	F-FUI-03200	1850	A	The FOS shall provide a utility that allows a user to filter items according to any of the following: a. spacecraft. b. spacecraft subsystem. c. instrument. d. ground system		functional		demo		
<b>CT</b>	F-FUI-03200								<u>verified</u>	
<b>CC</b>	F-FUI-03205	1851	A	The FOS shall allow the user to specify one or more spacecraft Ids as a filter criteria.		functional		demo		
<b>CT</b>	F-FUI-03205								<u>verified</u>	
<b>CC</b>	F-FUI-03210	1852	A	The FOS shall allow the user to specify one or more spacecraft subsystems as a filter criteria.		functional		demo		
<b>CT</b>	F-FUI-03210								<u>verified</u>	
<b>CC</b>	F-FUI-03215	1853	A	The FOS shall allow the user to specify one or more instruments		functional		demo		

				as a filter criteria.						
<b>CT</b>	F-FUI-03215								<u>verified</u>	
<b>CC</b>	F-FUI-03220	1854	A	The FOS shall allow the user to specify one or more ground systems as a filter criteria.		functional		demo		
<b>CT</b>	F-FUI-03220								<u>verified</u>	
<b>CC</b>	F-FUI-03225	1855	A	The FOS shall allow the user to specify one or more subsystems associated with a spacecraft Id as a filter criteria.		functional		demo		
<b>CT</b>	F-FUI-03225								<u>verified</u>	
<b>CC</b>	F-FUI-04000	1857	A	The FOS shall provide the capability to display a mission schedule for a specified time period on a timeline display.		functional		test		
<b>CT</b>	F-FUI-04000								<u>verified</u>	
<b>CC</b>	F-FUI-04010	1858	A	The FOS shall provide the capability to display TDRSS		functional		test		



				availability for a specified time period on a timeline display.						
<b>CT</b>	F-FUI-04010								<u>verified</u>	
<b>CC</b>	F-FUI-04020	10432	A	The FOS shall provide the capability to display resource usage with 2D line plots or bar graphs on a timeline display.		functional	approved	test		
<b>CT</b>	F-FUI-04020								<u>verified</u>	
<b>CC</b>	F-FUI-04030	1860	A	The FOS shall provide the capability to scroll by time and resource on the timeline display.		functional		test		
<b>CT</b>	F-FUI-04030								<u>verified</u>	
<b>CC</b>	F-FUI-04040	1861	A	The FOS shall provide the capability to zoom in and out by time and resource on the timeline display .		functional		test		
<b>CT</b>	F-FUI-04040								<u>verified</u>	
<b>CC</b>	F-FUI-04050	1862	B	The FOS		functional		test		

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CC	F-FUI-04090	10433	B	The FOS shall provide the capability to display the start and end times of the Detailed Activity Schedule on the timeline display.		functional	approved	test		
CT	F-FUI-04090								<u>verified</u>	
CC	F-FUI-04100	10434	B	The FOS shall provide the capability to highlight activities that violate hard and soft constraints on the timeline display.		functional	approved	test		
CT	F-FUI-04100								<u>verified</u>	
CC	F-FUI-04110	10435	A	The FOS shall provide the capability to display 'what-if' changes on the timeline display.		functional	approved	test		
CT	F-FUI-04110								<u>verified</u>	
CC	F-FUI-04120	1869	A	The FOS shall provide the capability to display activities and events on		functional		test		

				the timeline display.						
<b>CT</b>	F-FUI-04120								<u>verified</u>	
<b>CC</b>	F-FUI-04130	1870	B	The FOS shall provide the capability to display the time period that a load is valid for uplink on the timeline display.		functional		test		
<b>CT</b>	F-FUI-04130								<u>verified</u>	
<b>CC</b>	F-FUI-04140	1871	B	The FOS shall provide the capability to display detailed information about activities and events selected from the timeline display.		functional		test		
<b>CT</b>	F-FUI-04140								<u>verified</u>	
<b>CC</b>	F-FUI-04280	1872	B	The FOS shall provide the capability to display the limit of orbit data from the FDF on the timeline.		functional		test		
<b>CT</b>	F-FUI-04280								<u>verified</u>	
<b>CC</b>	F-FUI-04290	1873	A	The FOS shall provide		functional		demo		

[illegible]

<b>CC</b>	F-FUI-05105	10415	B	The FOS shall provide an authorized user the capability to enter table data into a template using the data from an existing table load.		functional	approved	test		
<b>CT</b>	F-FUI-05105								<u>verified</u>	
<b>CC</b>	F-FUI-05110	4995	A	The FOS shall validate the table data entered by the user.		functional		test		
<b>CT</b>	F-FUI-05110								<u>verified</u>	
<b>CC</b>	F-FUI-05115	1878	A	The FOS shall display any validation errors that are detected.		functional		demo		
<b>CT</b>	F-FUI-05115								<u>verified</u>	
<b>CC</b>	F-FUI-05120	1879	A	The FOS shall provide an authorized user the capability to request the generation of a table load.		functional		test		
<b>CT</b>	F-FUI-05120								<u>verified</u>	
<b>CC</b>	F-FUI-05125	1880	A	The FOS shall notify the requester when a table load has		functional		demo		

				been successfully generated.						
<b>CT</b>	F-FUI-05125								<u>verified</u>	
<b>CC</b>	F-FUI-05130	1881	A	The FOS shall display any errors encountered during the table load generation process.		functional		test		
<b>CT</b>	F-FUI-05130								<u>verified</u>	
<b>CC</b>	F-FUI-05205	9296	B	The FOS shall provide an authorized user the capability to request the generation of an RTS load.		functional		test		
<b>CT</b>	F-FUI-05205								<u>verified</u>	
<b>CC</b>	F-FUI-05210	9297	B	The FOS shall display any validation errors detected in the RTS data.		functional		demo		
<b>CT</b>	F-FUI-05210								<u>verified</u>	
<b>CC</b>	F-FUI-05215	9298	B	The FOS shall notify the requester when an RTS load has been successfully generated.		functional		demo		
<b>CT</b>	F-FUI-05215								<u>verified</u>	
<b>CC</b>	F-FUI-05220	9299	B	The FOS		functional		demo		

[illegible]



<b>CC</b>	F-FUI-05340	1895	B	The FOS shall provide a user the capability to print a ground script with expanded procedures.		functional		analysis		
<b>CT</b>	F-FUI-05340								<u>verified</u>	
<b>CC</b>	F-FUI-05400	1896	B	The FOS shall provide a user the capability to display the command-to-memory map of an ATC buffer.		functional		demo		
<b>CT</b>	F-FUI-05400								<u>verified</u>	
<b>CC</b>	F-FUI-05405	10565	B	The FOS shall provide a user the capability to highlight the contents of the ATC buffer according to one or more of the following criteria:a. executed commandsb. commands awaiting executionc. commands associated with a specified command	ATC pseudo-ops include commands for the ATC processor (e.g., execute an RTS, jump to a specific location, no-ops, etc.).	functional	approved	demo		

				inhibit groupd. ATC pseudo- opse. critical commandsf. (reserved)g. empty areas (no-ops)h. commands associated with a specific instrument, andi. commands associated with a specific spacecraft subsystem.						
<b>CT</b>	F-FUI-05405								<u>verified</u>	
<b>CC</b>	F-FUI-05500	1898	B	The FOS shall provide a user the capability to display the map of the RTS buffers.		functional		demo		
<b>CT</b>	F-FUI-05500								<u>verified</u>	
<b>CC</b>	F-FUI-05510	10374	B	The FOS shall provide a user the capability to display RTS linkages.		functional	approved	demo		
<b>CT</b>	F-FUI-05510								<u>verified</u>	
<b>CC</b>	F-FUI-05515	10375	B	The FOS shall provide a user the capability to display the command- to-memory		functional	approved	demo		

				map of an RTS buffer.						
<b>CT</b>	F-FUI-05515								<u>verified</u>	
<b>CC</b>	F-FUI-05600	1902	B	The FOS shall provide a user the capability to display catalog information for each load uplinked or generated during the last seven days, at a minimum. Note: Catalog information includes: a load name b. load type c. valid load times d. load source e. load destination	Catalog information includes: a. load name b. load type c. valid load times d. load source e. load destination	functional		demo		
<b>CT</b>	F-FUI-05600								<u>verified</u>	
<b>CC</b>	F-FUI-05605	12978	B	The FOS shall provide a user the capability to generate a load uplink directive for a selected load.	The Planning and Scheduling and CMS subsystems generate the appropriate load uplink directives as part of the scheduling process. This scheduling procedure is available to	functional	approved	test	<u>unverified</u>	97-0524A

					any authorized user, not just the CAC. Load uplink directives will normally be placed into procedures to direct the uplink.					
<b>CT</b>	F-FUI-05605								<u>verified</u>	
<b>CC</b>	F-FUI-05700	13048	B	The FOS shall provide the capability for the user to select or input a load name for generating, scheduling, and deleting a load.		functional	approved	demo	<u>unverified</u>	97-0645A
<b>CT</b>	F-FUI-05700								<u>verified</u>	
<b>CC</b>	F-FUI-05705	13049	B	The FOS shall provide the capability for the user to input the data needed to build the load initiate command.		functional	approved	demo	<u>unverified</u>	97-0645A
<b>CT</b>	F-FUI-05705								<u>verified</u>	
<b>CC</b>	F-FUI-05720	13051	B	When deleting loads, the FOS shall request the user to provide		functional	approved	demo	<u>unverified</u>	97-0645A

				additional confirmation of his intent to delete the load.						
<b>CT</b>	F-FUI-05720								<u>verified</u>	
<b>CC</b>	F-FUI-05725	13052	B	The FOS shall provide the capability to ingest binary microprocessor and flight software load contents.		functional	approved	demo	<u>unverified</u>	97-0645A
<b>CT</b>	F-FUI-05725								<u>verified</u>	
<b>CC</b>	F-FUI-06105	1905	A	The FOS shall allow a user to terminate an executing procedure.		functional		demo		
<b>CT</b>	F-FUI-06105								<u>verified</u>	
<b>CC</b>	F-FUI-06110	1906	A	The FOS shall allow a user to suspend an executing procedure.		functional		demo		
<b>CT</b>	F-FUI-06110								<u>verified</u>	
<b>CC</b>	F-FUI-06115	11278	B	The FOS shall allow a user to resume a suspended procedure.		functional	approved	demo	<u>unverified</u>	96-0952A
<b>CT</b>	F-FUI-06115								<u>verified</u>	
<b>CC</b>	F-FUI-06120	11277	B	The FOS shall allow multiple local		functional	approved	demo	<u>unverified</u>	96-0952A

				procedures to execute simultaneously.						
<b>CT</b>	F-FUI-06120								<u>verified</u>	
<b>CC</b>	F-FUI-06130	11280	B	The FOS shall provide a display that allows a user to monitor the execution of a non-command procedure invoked from the user's workstation.	This display is activated when the non-command procedure is invoked. A non-command procedure is one that contains no spacecraft or instrument commands. command procedures can only be executed by a user with command authority and are merged with the currently executing ground script. Users may monitor the execution of a command procedure via the Command Control Display or the Command Monitor Display (reference	functional	approved	demo	<del>unverified</del>	96-0952A

					Section 9.1.6.3).					
<b>CT</b>	F-FUI-06130								<u>verified</u>	
<b>CC</b>	F-FUI-06135	11281	B	The FOS shall provide a display that allows a user to control the execution of a non-command procedure invoked from the user's workstation.	This display, which is activated when the procedure is invoked, allows a user to suspend, resume, or terminate the non-command procedure. command procedures are merged with the ground script directives and are controlled via the Command Control Display (reference Section 9.1.6.3).	functional	approved	demo	<del>unverified</del>	96-0952A
<b>CT</b>	F-FUI-06135								<u>verified</u>	
<b>CC</b>	F-FUI-06300	5342	A	The FOS shall display the following information for the active ground script:a. ground script time frame (UTC start and stop time)b.	Command Confirmation Mode, when enabled, requires the CAC to issue a 'Send' directive for each command directive.	functional		demo		

				ground script status (active or suspended)c . spacecraft ltd. (deleted)e. (deleted)f. command confirmation modeg. bias time						
<b>CT</b>	F-FUI-06300								<u>verified</u>	
<b>CC</b>	F-FUI-06305	1923	A	The FOS shall allow a user to view executed ground script directives, the current ground script directive, and future ground script directives.		functional		demo		
<b>CT</b>	F-FUI-06305								<u>verified</u>	
<b>CC</b>	F-FUI-06310	1924	B	The FOS shall display a count- down timer for the next three directives in the current ground script.		functional		demo		
<b>CT</b>	F-FUI-06310								<u>verified</u>	
<b>CC</b>	F-FUI-06315	1925	A	The FOS shall execute local directives encountered in the ground	The current system time may become later than the specified execution	functional		test		



				script at the specified execution time.	time of a directive in the ground script. This situation may occur if the ground script is suspended by the CAC for an extended period of time. If this happens, directives will be executed as quickly as possible until the execution time and the system time are synchronized.					
<b>CT</b>	F-FUI-06315								<u>verified</u>	
<b>CC</b>	F-FUI-06320	1926	A	The FOS shall process ground script command directives for the spacecraft and its instruments at the specified execution time.	Processing a command directive includes sending the directive to the commanding Subsystem where it is prepared for uplink to the spacecraft. The Commanding Subsystem performs the appropriate verification	functional		test		

					checks and returns the corresponding directive status to the command controller for display to a user.					
<b>CT</b>	F-FUI-06320								<u>verified</u>	
<b>CC</b>	F-FUI-06330	1928	B	The FOS shall display the following verification status for command directives depending upon whether the corresponding verification mode is enabled:a. prerequisite state check pass/failb. receipt of command at the spacecraft/instrument pass/fail (command verification)c. execution of the command by the spacecraft/instrument pass/fail (telemetry		functional		test		

				verification)						
<b>CT</b>	F-FUI-06330								<u>verified</u>	
<b>CC</b>	F-FUI-06335	1929	A	The FOS shall suspend ground script execution if an enabled prerequisite state check fails.	Verification checking only applies to command directives. If the current directive is a local directive, the next directive will become the current directive as soon as the local directive is executed.	functional		demo		
<b>CT</b>	F-FUI-06335								<u>verified</u>	
<b>CC</b>	F-FUI-06337	10378	A	The EOC shall provide the capability to request an override of a prerequisite state check failure.		functional	approved	demo		
<b>CT</b>	F-FUI-06337								<u>verified</u>	
<b>CC</b>	F-FUI-06340	1930	B	The FOS shall suspend ground script execution if any of the enabled verification checks fail.		functional		demo		
<b>CT</b>	F-FUI-06340								<u>verified</u>	
<b>CC</b>	F-FUI-06345	1931	B	The EOC shall provide the CAC the		functional		demo		

				capability to set (on/off) prerequisite state checking.						
<b>CT</b>	F-FUI-06345								<u>verified</u>	
<b>CC</b>	F-FUI-06350	1932	B	The EOC shall provide the CAC the capability to set (on/off) command verification checking.	Turning off command verification checking allows execution of the ground script to proceed without waiting for a command verification status. Command verification checking will always be performed.	functional		demo		
<b>CT</b>	F-FUI-06350								<u>verified</u>	
<b>CC</b>	F-FUI-06355	1933	B	The EOC shall provide the CAC the capability to set (on/off) telemetry verification checking.	Turning off telemetry verification checking allows execution of the ground script to proceed without waiting for a telemetry verification status. Telemetry verification checking will	functional		demo		

					always be performed.					
<b>CT</b>	F-FUI-06355								<u>verified</u>	
<b>CC</b>	F-FUI-06360	1934	A	The EOC shall provide the CAC the capability to select a directive in the ground script.		functional		demo		
<b>CT</b>	F-FUI-06360								<u>verified</u>	
<b>CC</b>	F-FUI-06365	1935	A	The EOC shall provide the CAC the capability to disable directives in the ground script.		functional		demo		
<b>CT</b>	F-FUI-06365								<u>verified</u>	
<b>CC</b>	F-FUI-06370	1936	A	The EOC shall provide the CAC the capability to enable directives in the ground script.		functional		demo		
<b>CT</b>	F-FUI-06370								<u>verified</u>	
<b>CC</b>	F-FUI-06375	1937	A	The EOC shall provide the CAC the capability to transfer execution to a directive in the ground script.	The EOC will allow the user to select a non-executed directive in the ground script and jump to the selected directive after the execution of the current	functional		demo		

					directive is successfully completed.					
<b>CT</b>	F-FUI-06375								<u>verified</u>	
<b>CC</b>	F-FUI-06380	10625	B	The EOC shall provide the CAC the capability to apply a bias time to directives in the ground script.		functional	approved	test		
<b>CT</b>	F-FUI-06380								<u>verified</u>	
<b>CC</b>	F-FUI-06385	1939	A	The EOC shall provide the CAC the capability to confirm a critical command directive.		functional		test		
<b>CT</b>	F-FUI-06385								<u>verified</u>	
<b>CC</b>	F-FUI-06390	1940	A	The EOC shall provide the CAC the capability to cancel a command directive.		functional		test		
<b>CT</b>	F-FUI-06390								<u>verified</u>	
<b>CC</b>	F-FUI-06395	10379	A	The EOC shall provide the CAC the capability to set (on/off) the command confirmation mode.		functional	approved	test		
<b>CT</b>	F-FUI-06395								<u>verified</u>	
<b>CC</b>	F-FUI-06400	10380	A	The EOC		functional	approved	test		

				shall provide the CAC the capability to confirm pending commands when command confirmation is enabled.						
<b>CT</b>	F-FUI-06400								<u>verified</u>	
<b>CC</b>	F-FUI-06405	10381	A	The EOC shall provide the CAC the capability to cancel pending commands when command confirmation is enabled.	The FOS will implement a command confirmation mode. If enabled, this mode will queue each command directive (i.e., place them into a pending command buffer) until the CAC confirms or cancels the directive.	functional	approved	test		
<b>CT</b>	F-FUI-06405								<u>verified</u>	
<b>CC</b>	F-FUI-06410	1944	A	The EOC shall provide the CAC the capability to terminate the current ground script.		functional		test		
<b>CT</b>	F-FUI-06410								<u>verified</u>	
<b>CC</b>	F-FUI-06415	1945	A	The EOC shall provide the CAC the capability to		functional		demo		

				start a ground script.						
<b>CT</b>	F-FUI-06415								<u>verified</u>	
<b>CC</b>	F-FUI-06420	1946	A	The EOC shall provide the CAC the capability to suspend execution of the ground script.		functional		demo		
<b>CT</b>	F-FUI-06420								<u>verified</u>	
<b>CC</b>	F-FUI-06425	1947	A	The EOC shall provide the CAC the capability to resume execution of the ground script.		functional		demo		
<b>CT</b>	F-FUI-06425								<u>verified</u>	
<b>CC</b>	F-FUI-06430	10382	A	The EOC shall provide the CAC the capability to merge procedures with the current executing ground script directives.		functional	approved	demo		
<b>CT</b>	F-FUI-06430								<u>verified</u>	
<b>CC</b>	F-FUI-06435	10383	A	The EOC shall provide the CAC the capability to merge a directive with the current executing		functional	approved	demo		



				ground script directives.						
<b>CT</b>	F-FUI-06435								<u>verified</u>	
<b>CC</b>	F-FUI-06440	1950	A	The FOS shall provide a user the capability to search the executing ground script for a specified procedure reference.		functional		demo		
<b>CT</b>	F-FUI-06440								<u>verified</u>	
<b>CC</b>	F-FUI-06445	1951	A	The FOS shall provide a user the capability to search the executing ground script for a specified command.		functional		demo		
<b>CT</b>	F-FUI-06445								<u>verified</u>	
<b>CC</b>	F-FUI-06450	1952	A	The FOS shall provide a user the capability to search the executing ground script for a specified time stamp.		functional		demo		
<b>CT</b>	F-FUI-06450								<u>verified</u>	
<b>CC</b>	F-FUI-06455	1953	A	The FOS shall provide a user the capability to search the		functional		demo		

				executing ground script for a specified text string.						
<b>CT</b>	F-FUI-06455								<u>verified</u>	
<b>CC</b>	F-FUI-06460	1954	A	The FOS shall provide a user the capability to print the current executing ground script.		functional		demo		
<b>CT</b>	F-FUI-06460								<u>verified</u>	
<b>CC</b>	F-FUI-06465	4999	B	The EOC shall save the "as-used" ground script and make it available for future analysis.		functional		test		
<b>CT</b>	F-FUI-06465								<u>verified</u>	
<b>CC</b>	F-FUI-06470	10384	B	The FOS shall display all commands manually input.	This capability is commonly referred to as "command shadowing" by the Flight Operations Team.	functional	approved	demo		
<b>CT</b>	F-FUI-06470								<u>verified</u>	
<b>CC</b>	F-FUI-07100	10385	B	The FOS shall allow the user to select an update rate from 1 to 60		functional	approved	test		

				seconds.						
<b>CT</b>	F-FUI-07100								<u>verified</u>	
<b>CC</b>	F-FUI-07125	10616	B	The FOS shall allow the user to pause the display.		functional	approved	demo		
<b>CT</b>	F-FUI-07125								<u>verified</u>	
<b>CC</b>	F-FUI-07130	10617	B	The FOS shall allow the user to resume the display.		functional	approved	demo		
<b>CT</b>	F-FUI-07130								<u>verified</u>	
<b>CC</b>	F-FUI-07135	1959	A	The FOS shall label dynamically created displays as temporary.		functional		demo		
<b>CT</b>	F-FUI-07135								<u>verified</u>	
<b>CC</b>	F-FUI-07140	11575	A	The FOS shall provide the capability to specify the real-time display data source(s).		functional	approved	test	<u>unverified</u>	96-1082A
<b>CT</b>	F-FUI-07140								<u>verified</u>	
<b>CC</b>	F-FUI-07205	1962	A	The FOS shall allow alphanumeric displays to display one or more telemetry parameters.		functional		demo		
<b>CT</b>	F-FUI-07205								<u>verified</u>	
<b>CC</b>	F-FUI-07210	1963	A	The FOS shall load alphanumeric		functional		test		

				c displays dynamically from a predefined format.						
<b>CT</b>	F-FUI-07210								<u>verified</u>	
<b>CC</b>	F-FUI-07235	1970	A	The FOS shall allow the user to select telemetry parameters by using a pointing device (e.g., mouse, trackball, etc.).		functional		demo		
<b>CT</b>	F-FUI-07235								<u>verified</u>	
<b>CC</b>	F-FUI-07240	1971	A	The FOS shall allow the user to deselect telemetry parameters by using a pointing device (e.g., mouse, trackball, etc.) .		functional		demo		
<b>CT</b>	F-FUI-07240								<u>verified</u>	
<b>CC</b>	F-FUI-07305	10416	B	The FOS shall allow the user to select up to six telemetry parameters to graph.		functional	approved	demo		
<b>CT</b>	F-FUI-07305								<u>verified</u>	
<b>CC</b>	F-FUI-07310	12953	B	The FOS shall allow		functional	approved	analysis	<u>unverified</u>	97-0459A

				the user to plot data from different times and/or different data sources on a two dimensional graph.						
<b>CT</b>	F-FUI-07310								<u>verified</u>	
<b>CC</b>	F-FUI-07315	10417	B	The FOS shall display the minimum, current and maximum values of a selected telemetry parameter within the current visible area of the graph.		functional	approved	demo		
<b>CT</b>	F-FUI-07315								<u>verified</u>	
<b>CC</b>	F-FUI-07320	10418	B	The FOS shall allow the user to select a telemetry parameter from the graph utilizing a pointing device.		functional	approved	demo		
<b>CT</b>	F-FUI-07320								<u>verified</u>	
<b>CC</b>	F-FUI-07330	10420	B	The FOS shall have the capability to capture all		functional	approved	analysis		

				occurrences of a parameter between screen updates, and then display the captured data at the next update.						
<b>CT</b>	F-FUI-07330								<u>verified</u>	
<b>CC</b>	F-FUI-07345	10421	B	The FOS shall allow the user to select a line style with which a telemetry parameter is displayed.		functional	approved	demo		
<b>CT</b>	F-FUI-07345								<u>verified</u>	
<b>CC</b>	F-FUI-07350	1985	A	The FOS shall allow the user to select a symbol with which a telemetry parameter is displayed.		functional		demo		
<b>CT</b>	F-FUI-07350								<u>verified</u>	
<b>CC</b>	F-FUI-07355	1986	A	The FOS shall allow the user to specify whether the graph shall display a grid.		functional		demo		
<b>CT</b>	F-FUI-07355								<u>verified</u>	
<b>CC</b>	F-FUI-07360	10422	B	The FOS shall allow		functional	approved	demo		

				the user to specify the grid line style (dotted, dashed or solid).						
<b>CT</b>	F-FUI-07360								<u>verified</u>	
<b>CC</b>	F-FUI-07370	10424	B	The FOS shall allow the user to specify which high and low, red and yellow limit lines to display.		functional	approved	demo		
<b>CT</b>	F-FUI-07370								<u>verified</u>	
<b>CC</b>	F-FUI-07375	10425	B	The FOS shall allow the user to specify limit line style (dotted, dashed, or solid).		functional	approved	demo		
<b>CT</b>	F-FUI-07375								<u>verified</u>	
<b>CC</b>	F-FUI-07385	1992	A	The FOS shall allow the user to select the axis scale labels.		functional		demo		
<b>CT</b>	F-FUI-07385								<u>verified</u>	
<b>CC</b>	F-FUI-07388	10426	B	The FOS shall allow the user to specify the axis labels.		functional	approved	demo		
<b>CT</b>	F-FUI-07388								<u>verified</u>	
<b>CC</b>	F-FUI-07390	1994	A	The FOS shall allow the user to		functional		demo		

				specify the graph title.						
<b>CT</b>	F-FUI-07390								<u>verified</u>	
<b>CC</b>	F-FUI-07391	1995	A	The FOS shall allow the user to insert a graph legend.		functional		demo		
<b>CT</b>	F-FUI-07391								<u>verified</u>	
<b>CC</b>	F-FUI-07392	1996	A	The FOS shall allow the user to save a graph.		functional		demo		
<b>CT</b>	F-FUI-07392								<u>verified</u>	
<b>CC</b>	F-FUI-07394	10427	B	The FOS shall print graphs in either landscape or portrait orientation.		functional	approved	demo		
<b>CT</b>	F-FUI-07394								<u>verified</u>	
<b>CC</b>	F-FUI-07396	10428	B	The FOS shall allow the user to print up to 4 graphs per page.		functional	approved	demo		
<b>CT</b>	F-FUI-07396								<u>verified</u>	
<b>CC</b>	F-FUI-07425	10431	B	The FOS shall provide the user with the capability to capture all occurrences of a telemetry value between		functional	approved	analysis		



[illegible]

CC	F-FUI-07515	2007	B	The FOS shall drive the color coded schematic components with telemetry values.		functional		test		
CT	F-FUI-07515								<u>verified</u>	
CC	F-FUI-07520	2008	B	The FOS shall provide the user the capability to save a snapshot of the schematic.		functional		demo		
CT	F-FUI-07520								<u>verified</u>	
CC	F-FUI-07525	2009	B	The FOS shall provide the user the capability to print a snapshot of the schematic.		functional		demo		
CT	F-FUI-07525								<u>verified</u>	
CC	F-FUI-08100	2015	A	The FOS shall provide a user the capability to submit a resource service request.	A resource service request will contain the parameters needed by the Resource Management Subsystem to establish a logical string. These parameters include: a. spacecraft Id	functional		test		

					b. data base Id c. service type (real-time, replay, simulation) d. mode (opeational, training, test)					
<b>CT</b>	F-FUI-08100								<u>verified</u>	
<b>CC</b>	F-FUI-08105	2016	B	The FOS shall provide a user the capability to display ground system equipment status.		functional		test		
<b>CT</b>	F-FUI-08105								<u>verified</u>	
<b>CC</b>	F-FUI-08110	2017	B	The FOS shall provide a user the capability to display ground system parameter values.		functional		test		
<b>CT</b>	F-FUI-08110								<u>verified</u>	
<b>CC</b>	F-FUI-09105	2020	A	The FOS shall provide the capability to select a sampling rate per selected telemetry parameter when building an analysis		functional		demo		

				request for historical data analysis. Sampling rates shall be one of the following:a. all datab. changes onlyc. every Nth sample when N = a specified number						
<b>CT</b>	F-FUI-09105								<u>verified</u>	
<b>CC</b>	F-FUI-09110	5008	A	The FOS shall provide the capability to select statistical data per selected TLM parameter when building an analysis request for historical data analysis. Statistics shall be one of the following:a. system generatedb. min-max reduced, with a specified		functional		demo		

[illegible]

<b>CC</b>	F-FUI-09205	10398	B	The FOS shall provide the capability to save analysis results.		functional	approved	demo		
<b>CT</b>	F-FUI-09205								<u>verified</u>	
<b>CC</b>	F-FUI-09210	10399	B	The FOS shall provide the capability to print analysis results.		functional	approved	demo		
<b>CT</b>	F-FUI-09210								<u>verified</u>	
<b>CC</b>	F-FUI-09610	2057	A	The event display shall have a scrolling text field that displays the current event messages.		functional		analysis		
<b>CT</b>	F-FUI-09610								<u>verified</u>	
<b>CC</b>	F-FUI-09615	2058	A	The event display shall contain a graphical timeline that displays one indicator per event.		functional		demo		
<b>CT</b>	F-FUI-09615								<u>verified</u>	
<b>CC</b>	F-FUI-09620	2059	A	The graphical timeline event indicators shall be color coded per event		functional		demo		

				type.						
<b>CT</b>	F-FUI-09620								<u>verified</u>	
<b>CC</b>	F-FUI-09625	2060	A	As a user scrolls through the event text, the graphical timeline shall display a time correlated visual indicator.		functional		demo		
<b>CT</b>	F-FUI-09625								<u>verified</u>	
<b>CC</b>	F-FUI-09630	2061	A	As a user selects an event in the graphical timeline, the event text shall scroll to the corresponding event.		functional		demo		
<b>CT</b>	F-FUI-09630								<u>verified</u>	
<b>CC</b>	F-FUI-09635	2062	A	The FOS shall allow the user to search for event messages that contain specific textual content.		functional		test		
<b>CT</b>	F-FUI-09635								<u>verified</u>	
<b>CC</b>	F-FUI-09640	2063	B	The FOS shall provide the results of an event history request in		functional		test		

				the event history display.						
<b>CT</b>	F-FUI-09640								<u>verified</u>	
<b>CC</b>	F-FUI-09645	10404	B	The FOS shall visually alert a user that an event has occurred.		functional	approved	test		
<b>CT</b>	F-FUI-09645								<u>verified</u>	
<b>CC</b>	F-FUI-09660	10629	B	The FOS shall allow the operator to locally disable the acknowledgment of alarms functions.		functional	approved	demo		
<b>CT</b>	F-FUI-09660								<u>verified</u>	
<b>CC</b>	F-FUI-09663	12958	B	The FOS shall provide the capability to configure an events display as either a local events display or a global events display.		functional	approved	demo	<u>unverified</u>	97-0460
<b>CT</b>	F-FUI-09663								<u>verified</u>	
<b>CC</b>	F-FUI-09665	12959	B	The FOS shall provide the capability for a user to display both a local		functional	approved	demo	<u>unverified</u>	97-0460



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<b>CC</b>	F-FUI-12310	10568	B	The FOS shall allow a user to select a replay rate from 1 kilobit per second up to 150 kilobits per second.		functional	approved	demo		
<b>CT</b>	F-FUI-12310								<u>verified</u>	
<b>CC</b>	F-FUI-17265	10409	B	The FOS shall provide the capability to display the inhibit flags.		functional	approved	test		
<b>CT</b>	F-FUI-17265								<u>verified</u>	
<b>CC</b>	F-FUI-17270	10410	B	The FOS shall provide the capability to display the spacecraft activity log.		functional	approved	test		
<b>CT</b>	F-FUI-17270								<u>verified</u>	
<b>CC</b>	F-FUI-17700	2280	A	The FOS shall display current master/major cycle count.		functional		test		
<b>CT</b>	F-FUI-17700								<u>verified</u>	
<b>CC</b>	F-FUI-19550	13113	B	The FOS shall provide the capability to display the most recent 300 AM1 activity log messages.		functional	approved	demo	<u>unverified</u>	97-0753A

<b>CT</b>	F-FUI-19550								<u>verified</u>	
<b>CC</b>	F-HRD-00005	11158	B	Each Real-Time Server shall be physically and functionally identical in supporting the FOS processing requirements .		functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-00005								<u>verified</u>	
<b>CC</b>	F-HRD-00010	10823	A	The Real-Time Server shall include a CRT to be used as the local systems operations console.		functional	approved	inspection	<u>unverified</u>	96-0953
<b>CT</b>	F-HRD-00010								<u>verified</u>	
<b>CC</b>	F-HRD-00015	1026	A	The Real-Time Server shall be upgradeable/expandable with additional quantities and types of peripherals.		functional		inspection		
<b>CT</b>	F-HRD-00015								<u>verified</u>	
<b>CC</b>	F-HRD-00020	1027	A	The Real-Time Server shall be upgradeable/replaceable within the same product		functional		inspection		

				family without the need for any perturbation of any software or replacement of any peripheral or attached component.						
<b>CT</b>	F-HRD-00020								<u>verified</u>	
<b>CC</b>	F-HRD-00025	1028	A	At a minimum, the Real-Time Server processor shall meet the following capacity and functional requirements :a. POSIX compliant IEEE 1003.1 operating system (UNIX).b. POSIX compliant IEEE 1003.4 real-time extensionc. Shall support 2 FDDI interface cards.		standards		inspection		
<b>CT</b>	F-HRD-00025								<u>verified</u>	
<b>CC</b>	F-HRD-00030	1029	A	Real-Time Server disk drives shall provide a minimum of		performance		inspection		

				4 gigabytes and shall be upgradeable to 8 gigabytes.						
<b>CT</b>	F-HRD-00030								<u>verified</u>	
<b>CC</b>	F-HRD-00035	1030	A	All disk drives serving a specific function (e.g. system and applications software, or data storage) shall be identical and will have equal capacity.		functional		inspection		
<b>CT</b>	F-HRD-00035								<u>verified</u>	
<b>CC</b>	F-HRD-00040	1031	A	Each Real-Time Server shall support one tape drive.		functional		inspection		
<b>CT</b>	F-HRD-00040								<u>verified</u>	
<b>CC</b>	F-HRD-00045	1032	A	Each Real-Time Server tape drive shall have the following characteristics: a. 4mm Digital Audio Tape (DAT) format b. Accept industry standard magnetic 4mm DAT (i.e. DDS-		standards		inspection		

				90)c. Data transfer rate of 400KB/sec						
<b>CT</b>	F-HRD-00045								<u>verified</u>	
<b>CC</b>	F-HRD-00050	1033	A	The Real-Time Server tape drives shall be upgradeable/replaceable within the same product family.		functional		inspection		
<b>CT</b>	F-HRD-00050								<u>verified</u>	
<b>CC</b>	F-HRD-00055	1034	A	Each Real-Time Server shall support one CD-ROM drive.		functional		inspection		
<b>CT</b>	F-HRD-00055								<u>verified</u>	
<b>CC</b>	F-HRD-00060	1035	A	Each Real-Time Server CD-ROM drive shall have the following characteristics: a. Accept 600MB Compact Disk		functional		inspection		
<b>CT</b>	F-HRD-00060								<u>verified</u>	
<b>CC</b>	F-HRD-00065	1036	A	The cabinet shall provide a RETMA standard 19 inches of equipment mounting width.		standards		inspection		

<b>CT</b>	F-HRD-00065								<u>verified</u>	
<b>CC</b>	F-HRD-00070	1037	A	The cabinet shall be a minimum of 54" and a maximum of 72" tall, with standard 19" rack mounts.		functional		inspection		
<b>CT</b>	F-HRD-00070								<u>verified</u>	
<b>CC</b>	F-HRD-00075	1038	A	The cabinet shall provide a minimum of 24 inches of equipment mounting depth.		functional		inspection		
<b>CT</b>	F-HRD-00075								<u>verified</u>	
<b>CC</b>	F-HRD-00090	1041	A	The cabinet shall provide earth continuity for all components within.		functional		inspection		
<b>CT</b>	F-HRD-00090								<u>verified</u>	
<b>CC</b>	F-HRD-00095	1042	A	The cabinet shall provide sufficient equipment ventilation.		functional		inspection		
<b>CT</b>	F-HRD-00095								<u>verified</u>	
<b>CC</b>	F-HRD-00100	1043	A	The cabinet shall supply a minimum of one power controller.		functional		inspection		
<b>CT</b>	F-HRD-00100								<u>verified</u>	
<b>CC</b>	F-HRD-01005	1044	A	At a minimum, each processor		standards		inspection		

				shall meet the following capacity and functional requirements :a. POSIX compliant IEEE 1003.1 operating system (UNIX)b. Support AUI 802.3 ethernet connection.c . Support 2GB internal disk.						
<b>CT</b>	F-HRD-01005								<u>verified</u>	
<b>CC</b>	F-HRD-01010	1045	A	Each User Station shall provide one QWERTY keyboard which shall:a. Be detachable and cabled for movement on a desk-top style workstation area.b. Provide a minimum of 12 programmable function keys		functional		inspection		
<b>CT</b>	F-HRD-01010								<u>verified</u>	
<b>CC</b>	F-HRD-01020	1047	A	The User Station shall		functional		inspection		



				provide one cursor pointing device (mouse)						
<b>CT</b>	F-HRD-01020								<u>verified</u>	
<b>CC</b>	F-HRD-01025	1048	A	The User Station shall be upgradeable/replaceable within the same product family.		functional		inspection		
<b>CT</b>	F-HRD-01025								<u>verified</u>	
<b>CC</b>	F-HRD-01030	1049	A	The video hardcopy device shall provide a minimum of 16 colors.		functional		inspection		
<b>CT</b>	F-HRD-01030								<u>verified</u>	
<b>CC</b>	F-HRD-01035	1050	A	The video hardcopy device shall be physically relocatable within the EOC.		functional		inspection		
<b>CT</b>	F-HRD-01035								<u>verified</u>	
<b>CC</b>	F-HRD-01040	1051	A	The video hardcopy device shall be capable of printing 2 pages per minute.		performance		inspection		
<b>CT</b>	F-HRD-01040								<u>verified</u>	
<b>CC</b>	F-HRD-01045	1052	A	The video hardcopy device shall		functional		demo		

				be controlled from a remote control.						
<b>CT</b>	F-HRD-01045								<u>verified</u>	
<b>CC</b>	F-HRD-02005	1053	A	The Data Server processors shall be physically and functionally identical in supporting the FOS processing requirements .		functional		inspection		
<b>CT</b>	F-HRD-02005								<u>verified</u>	
<b>CC</b>	F-HRD-02010	10824	A	Each Data Server shall include a CRT or window to be used as the local systems operations console.		functional	approved	inspection	<u>unverified</u>	96-0953
<b>CT</b>	F-HRD-02010								<u>verified</u>	
<b>CC</b>	F-HRD-02015	1055	A	Each Data Server shall be upgradeable/expandable with additional quantities and types of peripherals.		functional		inspection		
<b>CT</b>	F-HRD-02015								<u>verified</u>	
<b>CC</b>	F-HRD-02020	1056	A	Each Data		functional		inspection		

				Server shall be upgradeable/replaceable within the same product family without the need for any perturbation of any software or replacement of any peripheral or attached component.						
<b>CT</b>	F-HRD-02020								<u>verified</u>	
<b>CC</b>	F-HRD-02025	1057	A	At a minimum, each Data Server processor shall meet the following capacity and functional requirements :a. POSIX compliant IEEE 1003.1 Operating System (UNIX)b. Shall support 2 FDDI interface cards.		standards		inspection		
<b>CT</b>	F-HRD-02025								<u>verified</u>	
<b>CC</b>	F-HRD-02030	1058	A	Data Server disk drives shall provide		functional		inspection		

				a minimum of 4 gigabytes and shall be upgradeable to 8 gigabytes.						
<b>CT</b>	F-HRD-02030								<u>verified</u>	
<b>CC</b>	F-HRD-02035	1059	A	All drives serving a specific function (e.g. system and applications software, or data storage) shall be identical and will have equal capacity.		functional		inspection		
<b>CT</b>	F-HRD-02035								<u>verified</u>	
<b>CC</b>	F-HRD-02040	1060	A	Each Data Server shall support one tape drive.		functional		inspection		
<b>CT</b>	F-HRD-02040								<u>verified</u>	
<b>CC</b>	F-HRD-02045	1061	A	Each Data Server tape drive shall have the following characteristics: a. 4mm Digital Audio Tape format b. Accept industry standard magnetic 4mm DAT (i.e. DDS-		performance		inspection		

				90)c. Data transfer rate of 400KB/sec						
<b>CT</b>	F-HRD-02045								<u>verified</u>	
<b>CC</b>	F-HRD-02050	1062	A	The Data Server tape drives shall be upgradeable/replaceable within the same product family.		functional		inspection		
<b>CT</b>	F-HRD-02050								<u>verified</u>	
<b>CC</b>	F-HRD-02055	12004	B	Each Data Server shall support one CD-ROM drive.		functional	approved	inspection	<u>unverified</u>	97-0067
<b>CT</b>	F-HRD-02055								<u>verified</u>	
<b>CC</b>	F-HRD-02060	12005	B	Each Data Server CD-ROM drive shall have the following characteristics:a. Accept 600MB Compact Disk		functional	approved	inspection	<u>unverified</u>	97-0067
<b>CT</b>	F-HRD-02060								<u>verified</u>	
<b>CC</b>	F-HRD-02065	12006	B	The Data Server CD-ROM drives shall be upgradeable/replaceable within the same product		functional	approved	inspection	<u>unverified</u>	97-0067

				family.						
<b>CT</b>	F-HRD-02065								<u>verified</u>	
<b>CC</b>	F-HRD-02070	1066	A	The cabinet shall provide a RETMA standard 19 inches of equipment mounting width.		standards		inspection		
<b>CT</b>	F-HRD-02070								<u>verified</u>	
<b>CC</b>	F-HRD-02075	13085	A	The cabinet shall provide a minimum of 34 vertical Units (1 Unit = 1.75") of equipment mounting height.		functional	approved	inspection	<u>unverified</u>	97-0721
<b>CT</b>	F-HRD-02075								<u>verified</u>	
<b>CC</b>	F-HRD-02080	1068	A	The cabinet shall provide a minimum of 24 inches of equipment mounting depth.		functional		inspection		
<b>CT</b>	F-HRD-02080								<u>verified</u>	
<b>CC</b>	F-HRD-02095	1071	A	The cabinet shall provide earth continuity for all components within.		functional		inspection		
<b>CT</b>	F-HRD-02095								<u>verified</u>	
<b>CC</b>	F-HRD-02100	1072	A	The cabinet shall provide sufficient equipment ventilation.		functional		inspection		

<b>CT</b>	F-HRD-02100								<u>verified</u>	
<b>CC</b>	F-HRD-02105	1073	A	The cabinet shall supply a minimum of one power controller.		functional		inspection		
<b>CT</b>	F-HRD-02105								<u>verified</u>	
<b>CC</b>	F-HRD-03005	1074	A	Shall be compatible with POSIX compliant operating systems.		standards		inspection		
<b>CT</b>	F-HRD-03005								<u>verified</u>	
<b>CC</b>	F-HRD-03010	1075	A	Shall be accessible from servers and workstations on the network.		functional		demo		
<b>CT</b>	F-HRD-03010								<u>verified</u>	
<b>CC</b>	F-HRD-03015	11161	B	The RAID storage shall provide a minimum of 40 usable gigabytes.	Amount of addressable disk after RAID has been implemented.	functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-03015								<u>verified</u>	
<b>CC</b>	F-HRD-03020	1076	A	All RAID drives shall be identical and have equal capacity.		functional		inspection		
<b>CT</b>	F-HRD-03020								<u>verified</u>	
<b>CC</b>	F-HRD-03025	1077	A	RAID shall support RAID level-5: striping with interleaved	Disk striping with interleaved parity.	functional		inspection		

				parity.						
<b>CT</b>	F-HRD-03025								<u>verified</u>	
<b>CC</b>	F-HRD-03030	1078	A	Disks shall be Hot Swappable.	Parts are replaceable while device is powered on.	functional		demo		
<b>CT</b>	F-HRD-03030								<u>verified</u>	
<b>CC</b>	F-HRD-03035	13086	A	Power supplies for the RAID shall be hot-swappable.		functional	approved	demo	<u>unverified</u>	97-0721
<b>CT</b>	F-HRD-03035								<u>verified</u>	
<b>CC</b>	F-HRD-03045	13087	A	The RAID unit shall have a data transfer rate of 10MB per second.		performance	approved	inspection	<u>unverified</u>	97-0721
<b>CT</b>	F-HRD-03045								<u>verified</u>	
<b>CC</b>	F-HRD-04005	11170	B	There shall be a minimum of five system printers located at the EOC.		functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-04005								<u>verified</u>	
<b>CC</b>	F-HRD-04010	11171	B	The system printers shall be physically and functionally identical in supporting the FOS printing requirements.		functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-04010								<u>verified</u>	
<b>CC</b>	F-HRD-04015	1084	A	The printers		performance		demo		



				shall be capable of printing 8 pages per minute.						
<b>CT</b>	F-HRD-04015								<u>verified</u>	
<b>CC</b>	F-HRD-04020	11172	B	There shall be a minimum of two logging printers located at the EOC.		functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-04020								<u>verified</u>	
<b>CC</b>	F-HRD-04025	1086	A	Each logging printer shall be capable of printing a minimum of 1200 lines per minute.		performance		demo		
<b>CT</b>	F-HRD-04025								<u>verified</u>	
<b>CC</b>	F-HRD-04030	1087	A	The printer shall support continuous feed paper.		functional		inspection		
<b>CT</b>	F-HRD-04030								<u>verified</u>	
<b>CC</b>	F-HRD-05005	1088	A	There shall be a minimum of two network time servers located at the EOC.		functional		demo		
<b>CT</b>	F-HRD-05005								<u>verified</u>	
<b>CC</b>	F-HRD-05010	1089	A	The time reference for each network time server shall be a GFE NASA-36 bit		functional		inspection		

				serial time code signal.						
<b>CT</b>	F-HRD-05010								<u>verified</u>	
<b>CC</b>	F-HRD-05015	1090	A	The time server shall support the network time protocol (NTP).		functional		analysis		
<b>CT</b>	F-HRD-05015								<u>verified</u>	
<b>CC</b>	F-HRD-05020	11173	B	There shall be a minimum of two time code displays located at the EOC.		functional	approved	inspection	<u>unverified</u>	96-0952A
<b>CT</b>	F-HRD-05020								<u>verified</u>	
<b>CC</b>	F-HRD-06005	1093	A	The local area network shall support 100Mbps bandwidth and 10 Mbps baseband (different segments) as described by the IEEE 802.3 standard, and shall provide:a. Data Integrity - The network shall check for transmission errors.b. Redundancy - Redundant		performance		demo		

				connectivity shall prevent a single point of failure.c. Expandability - The network must be able to support up to 100 connections.						
<b>CT</b>	F-HRD-06005								<u>verified</u>	
<b>CC</b>	F-HRD-06010	13088	A	The EOC shall be designed with system test features to enable checkout and test with minimum impact on operations, including test points, and permanently installed test equipment.		functional	approved	test	<u>unverified</u>	97-0721
<b>CT</b>	F-HRD-06010								<u>verified</u>	
<b>CC</b>	F-HRD-06015	12007	B	Test equipment to be provided include:a. One communications line monitor to store and display up to 10,000 bytes of data sent and received		functional	approved	test	<u>unverified</u>	97-0067

				over any of the communications lines at rates of 10MB/sec to 100MB/sec, and supporting the protocols used by FOS.b. One Local Area Network analyzer						
<b>CT</b>	F-HRD-06015								<u>verified</u>	
<b>CC</b>	F-HRD-07005	11175	B	The EOC shall provide (for AM-1) three (3) Real-Time Servers configured with:a. Six Fixed Disks (two per Real-Time Server)b. Three Tape Drives (one per Real-Time Server)c. Three CD-ROM Drives (one per Real-Time Server)d. Three Operator Consoles (one per Real-Time		functional	approved	inspection	<del>unverified</del>	96-0952A

				Server)e. Three System Printers (one per Real- Time Server)f. Three Timing Interfaces (one per Real-Time Server)						
<b>CT</b>	F-HRD-07005								<u>verified</u>	
<b>CC</b>	F-HRD-07015	11177	B	The EOC shall provide three (3) Data Servers configured with:a. Six Fixed Disks (two per Data Server)b. Three Tape Drives (one per Data Server)c. Three CD- ROM Drives (one per Data Server)d. Three Operator Consoles (one per Data Server)		functional	approved	inspection	<del>unverified</del>	96-0952A
<b>CT</b>	F-HRD-07015								<u>verified</u>	
<b>CC</b>	F-HRD-07017	1099	A	The EOC shall provide one Data Storage Unit		functional		inspection		

				supporting RAID level 5.						
<b>CT</b>	F-HRD-07017								<u>verified</u>	
<b>CC</b>	F-HRD-07020	1100	A	The EOC shall provide a redundant Local Area Network.		functional		inspection		
<b>CT</b>	F-HRD-07020								<u>verified</u>	
<b>CC</b>	F-HRD-07025	1101	A	All EOC workstations and processors shall be capable of operating simultaneou sly and independentl y.		functional		inspection		
<b>CT</b>	F-HRD-07025								<u>verified</u>	
<b>CC</b>	F-PAS-00020	10439	B	The EOC shall provide the capability for an authorized user to create a long term spacecraft operations plan.		functional	approved	test		
<b>CT</b>	F-PAS-00020								<u>verified</u>	
<b>CC</b>	F-PAS-00025	10440	B	The EOC shall provide the capability for an authorized user to		functional	approved	test		

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<b>CC</b>	F-PAS-00105	10444	B	The FOS shall provide the capability for an authorized user to make updates to a mission schedule for a specific spacecraft.		functional	approved	test		
<b>CT</b>	F-PAS-00105								<u>verified</u>	
<b>CC</b>	F-PAS-00115	9320	B	The FOS shall provide the capability for an authorized user to create a mission schedule for a specific spacecraft.		functional		test		
<b>CT</b>	F-PAS-00115								<u>verified</u>	
<b>CC</b>	F-PAS-00135	10446	B	The FOS shall provide the capability for an authorized user to update portions of a mission schedule for a specific spacecraft.		functional	approved	test		
<b>CT</b>	F-PAS-00135								<u>verified</u>	
<b>CC</b>	F-PAS-00137	12961	B	The FOS shall accept predicted	DMS has responsibility for this	interface	approved	demo	<u>unverified</u>	97-0516



				orbit data and planning aids for EOS spacecraft from the FDF.	requirement.					
<b>CT</b>	F-PAS-00137								<u>verified</u>	
<b>CC</b>	F-PAS-00138	12962	B	The FOS shall make predicted orbit data and planning aids for a specific spacecraft available to authorized users.	DMS has responsibility for this requirement.	functional	approved	test	<u>unverified</u>	97-0516
<b>CT</b>	F-PAS-00138								<u>verified</u>	
<b>CC</b>	F-PAS-00140	10449	B	The FOS shall provide the capability to notify the user when he attempts to schedule an activity beyond the limit of the predicted orbit data provided by the FDF.	Any activities requested beyond this limit can be scheduled but will not be associated with any particular spacecraft orbit or ground trace. The FOS will not be propagating orbit data beyond what the FDF provides.	functional	approved	test		
<b>CT</b>	F-PAS-00140								<u>verified</u>	
<b>CC</b>	F-PAS-00145	12963	B	The FOS shall provide the capability for	DMS has responsibility for this requirement.	functional	approved	demo	<u>unverified</u>	97-0516

				an authorized user to receive updated spacecraft orbit data from the FDF.						
<b>CT</b>	F-PAS-00145								<u>verified</u>	
<b>CC</b>	F-PAS-00150	10451	B	The FOS shall provide the capability for an authorized user to incorporate updated orbit data from the FDF into the mission schedule for a specific spacecraft.		functional	approved	test		
<b>CT</b>	F-PAS-00150								<u>verified</u>	
<b>CC</b>	F-PAS-00160	4968	B	The FOS shall provide the capability for an authorized user to make 'what-if' changes without affecting the mission schedule for a specific spacecraft.	'What-if' changes will allow planners to study alternate mission schedules in an off-line and non-interfering mode. Capabilities like constraint checking that are available for mission	functional		test		

					schedules will be available in the 'what-if' mode.					
<b>CT</b>	F-PAS-00160								<u>verified</u>	
<b>CC</b>	F-PAS-00165	1123	B	The FOS shall provide the capability for an authorized user to discard 'what-if' changes without affecting the mission schedule for a specific spacecraft.		functional		test		
<b>CT</b>	F-PAS-00165								<u>verified</u>	
<b>CC</b>	F-PAS-00170	1124	B	The FOS shall provide the capability for an authorized user to save 'what-if' changes to the mission schedule without affecting the mission schedule for a specific spacecraft.	These changes would be set aside and would not be incorporated. This capability would allow a planner to save a set of changes he has not finished so that he could turn off his machine.	functional		test		
<b>CT</b>	F-PAS-00170								<u>verified</u>	
<b>CC</b>	F-PAS-00175	1125	B	The FOS shall provide the		functional		test		

				capability for an authorized user to retrieve previously saved 'what-if' changes without affecting the mission schedule for a specific spacecraft.						
<b>CT</b>	F-PAS-00175								<u>verified</u>	
<b>CC</b>	F-PAS-00180	1126	B	The FOS shall provide the capability for an authorized user to delete previously saved 'what-if' changes without affecting the mission schedule for a specific spacecraft.		functional		test		
<b>CT</b>	F-PAS-00180								<u>verified</u>	
<b>CC</b>	F-PAS-00185	1127	B	The FOS shall provide the capability for an authorized user to incorporate 'what-if' changes to		functional		test		

				the mission schedule for a specific spacecraft.						
<b>CT</b>	F-PAS-00185								<u>verified</u>	
<b>CC</b>	F-PAS-00195	1128	B	The FOS shall prevent a user from inputting 'what-if' requests to any portion of a mission schedule that he does not have update access for.		functional		test		
<b>CT</b>	F-PAS-00195								<u>verified</u>	
<b>CC</b>	F-PAS-00200	4984	A	The FOS shall provide the capability for an authorized user to create an activity definition.	Activity definitions will be stored in the Project Database.	functional		test		
<b>CT</b>	F-PAS-00200								<u>verified</u>	
<b>CC</b>	F-PAS-00205	4985	A	The FOS shall provide the capability for an authorized user to modify an activity definition.		functional		test		
<b>CT</b>	F-PAS-00205								<u>verified</u>	
<b>CC</b>	F-PAS-00210	4987	A	The FOS		functional		test		

				shall provide the capability for an authorized user to delete an activity definition.						
<b>CT</b>	F-PAS-00210								<u>verified</u>	
<b>CC</b>	F-PAS-00215	4988	A	The FOS shall provide the capability to associate a command sequence with an activity definition.	Commands will be identified using mnemonic names from the Project Database. Commands include spacecraft and ground directives. Constraint checking of command sequences will be done by Data Management as part of the Project Database validation process.	functional		test		
<b>CT</b>	F-PAS-00215								<u>verified</u>	
<b>CC</b>	F-PAS-00220	5343	A	The FOS shall provide the capability to define parameters in an activity	The user will be able to specify parameter values when the activity is scheduled.	functional		test		

				definition and associate them with individual commands in an activity command sequence.						
<b>CT</b>	F-PAS-00220								<u>verified</u>	
<b>CC</b>	F-PAS-00300	1129	A	The FOS shall provide the capability for an authorized user to schedule an activity for a specific date and time		functional		test		
<b>CT</b>	F-PAS-00300								<u>verified</u>	
<b>CC</b>	F-PAS-00310	10454	A	The FOS shall provide the capability for an authorized user to schedule an activity at user defined intervals starting at a specific date and time.	Planners will be able to select the following intervals: every n seconds (1 - 6000); or every n minutes (1 - 1440); or every n hours (1 - 960); or every n days (1 - 365); or every n weeks (1 - 52); or every n months (1 - 60); or every n years (1 -	functional	approved	test		

					10); or every orbit.					
<b>CT</b>	F-PAS-00310								<u>verified</u>	
<b>CC</b>	F-PAS-00315	1131	A	The FOS shall provide the capability for an authorized user to schedule an activity at a delta time from some mission event.		functional		test		
<b>CT</b>	F-PAS-00315								<u>verified</u>	
<b>CC</b>	F-PAS-00330	1132	A	The FOS shall assign a unique identifier to each individual activity in the mission schedule.	This will allow planners to specifically identify activities. For instance, if a planner found an activity on a textual report and wanted to display it on the timeline, the unique identifier will help him find it more easily on the timeline.	functional		test		
<b>CT</b>	F-PAS-00330								<u>verified</u>	
<b>CC</b>	F-PAS-00335	10455	B	The FOS shall provide the capability for an authorized		functional	approved	test		



				user to delete an activity from the mission schedule.						
<b>CT</b>	F-PAS-00335								<u>verified</u>	
<b>CC</b>	F-PAS-00350	1135	A	The FOS shall provide the capability for an authorized user to schedule a list of activities.		functional		test		
<b>CT</b>	F-PAS-00350								<u>verified</u>	
<b>CC</b>	F-PAS-00355	1136	B	The FOS shall provide the capability for an authorized user to identify activities on the mission schedule that prevent the scheduling of a specific activity.	This will be used to do impact scheduling. Planners may want to force an activity into the mission schedule. They will be able to insert it into the mission schedule and determine the other activities that are in conflict.	functional		test		
<b>CT</b>	F-PAS-00355								<u>verified</u>	
<b>CC</b>	F-PAS-00360	1137	B	The FOS shall provide the capability for an authorized	If planners determine that the forced activity will take precedence	functional		test		

				user to delete activities that prevent the scheduling of a specific activity.	they will be able to delete other activities in conflict.					
<b>CT</b>	F-PAS-00360								<u>verified</u>	
<b>CC</b>	F-PAS-00365	13105	B	The FOS shall provide the capability for an authorized user to collect deleted activities in an activity list.	This will allow planners to reschedule deleted activities. The list of deleted activities is only available for the current session.	functional	approved	test	<u>unverified</u>	97-0684A
<b>CT</b>	F-PAS-00365								<u>verified</u>	
<b>CC</b>	F-PAS-00405	13111	A	The FOS shall supply predefined default parameter values if optional parameters are not supplied before an activity is scheduled .	Optional parameters are values for command submnemonic s and values for command procedure variables.	functional	approved	test	<u>unverified</u>	97-0684A
<b>CT</b>	F-PAS-00405								<u>verified</u>	
<b>CC</b>	F-PAS-00410	13112	B	The FOS shall provide the capability for an authorized user to	Optional parameters are values for command submnemonic s and values for command	functional	approved	test	<u>unverified</u>	97-0684A

				modify optional parameters for an activity that is already scheduled .	procedure variables.					
<b>CT</b>	F-PAS-00410								<u>verified</u>	
<b>CC</b>	F-PAS-00415	1144	A	The FOS shall not allow an optional parameter to be defined out of predefined limits for an activity that is scheduled .		functional		test		
<b>CT</b>	F-PAS-00415								<u>verified</u>	
<b>CC</b>	F-PAS-00420	10554	B	The FOS shall provide read-only access to non-modifiable parameters for an activity that is scheduled .	Parameters of this type will be able to be modified through the controlled process provided by the Data Management Subsystem.	functional	approved	test		
<b>CT</b>	F-PAS-00420								<u>verified</u>	
<b>CC</b>	F-PAS-00425	1146	B	The FOS shall provide the capability for an authorized user to create an association	This will allow planners to coordinate observations involving multiple instruments and/or in-situ collection	functional		test		

				between multiple activities or mission events.	activities.					
<b>CT</b>	F-PAS-00425								<u>verified</u>	
<b>CC</b>	F-PAS-00500	10458	A	The FOS shall provide the capability for an authorized user to create a list of recurring activities and store them in a Baseline Activity Profile (BAP) definition for an instrument, spacecraft subsystem, or ground system.		functional	approved	test		
<b>CT</b>	F-PAS-00500								<u>verified</u>	
<b>CC</b>	F-PAS-00503	10459	A	The FOS shall provide the capability for an authorized user to maintain a Baseline Activity Profile (BAP) definition.	'Maintain' implies that a user will be able to edit or modify a BAP definition.	functional	approved	test		
<b>CT</b>	F-PAS-00503								<u>verified</u>	
<b>CC</b>	F-PAS-00505	10460	A	The FOS shall provide	For instance, if the cycle	functional	approved	test		

				the capability for an authorized user to delete a Baseline Activity Profile (BAP) definition.	were an orbit an instrument planner may want to schedule an activity after every satellite sunrise and sunset. Another instrument planner may want to schedule an activity before each lunar eclipse that occurs in a year.					
<b>CT</b>	F-PAS-00505								<u>verified</u>	
<b>CC</b>	F-PAS-00510	1150	B	The FOS shall provide the capability for an authorized user to schedule activities between a start and end time based on a Baseline Activity Profiles (BAP).	This will allow planners to use BAPs to schedule activities. Start and end times will be specified so that the BAP is not propagated out to infinity.	functional		test		
<b>CT</b>	F-PAS-00510								<u>verified</u>	
<b>CC</b>	F-PAS-00605	11871	A	The FOS shall provide the capability for an		functional		test	<u>unverified</u>	96-1358A

				authorized user to predict resource usage and availability based on predefined limits.						
<b>CT</b>	F-PAS-00605								<u>verified</u>	
<b>CC</b>	F-PAS-00610	1153	A	The FOS shall provide the capability for an authorized user to predict the amount of resources required for a set of activities scheduled from a start to an end time in the mission schedule.		functional		test		
<b>CT</b>	F-PAS-00610								<u>verified</u>	
<b>CC</b>	F-PAS-00700	10461	B	The FOS shall provide the capability for an authorized user to plan spacecraft communication contacts.		functional	approved	test		
<b>CT</b>	F-PAS-00700								<u>verified</u>	
<b>CC</b>	F-PAS-00705	10462	B	The FOS shall provide		functional	approved	test		

				the capability for an authorized user to include direct downlink activities on the mission schedule.						
<b>CT</b>	F-PAS-00705								<u>verified</u>	
<b>CC</b>	F-PAS-00800	10463	B	The FOS shall provide the capability for an authorized user to define the start and end times for the Detailed Activity Schedule.		functional	approved	test		
<b>CT</b>	F-PAS-00800								<u>verified</u>	
<b>CC</b>	F-PAS-00805	10464	B	The FOS shall identify all disallowed activities that are between the start and end times for the Detailed Activity Schedule.	Disallowed activities include: activities that are scheduled in windows; resource reservation request activities that are place holders for detailed activities; and activities that cause constraint	functional	approved	test		

					violations.					
<b>CT</b>	F-PAS-00805								<u>verified</u>	
<b>CC</b>	F-PAS-00810	10465	B	The FOS shall provide the capability for an authorized user to remove disallowed activities from the Detailed Activity Schedule.	This is intended to give the FOT the ability to avoid mistakes with an automated check.	functional	approved	test		
<b>CT</b>	F-PAS-00810								<u>verified</u>	
<b>CC</b>	F-PAS-00820	1162	A	The FOS shall provide notification when the total allocation of resources exceeds predefined limits .		functional		test		
<b>CT</b>	F-PAS-00820								<u>verified</u>	
<b>CC</b>	F-PAS-00835	10467	B	The FOS shall ensure that activities in the Detailed Activity Schedule are within predefined resource limits .		functional	approved	test		
<b>CT</b>	F-PAS-00835								<u>verified</u>	
<b>CC</b>	F-PAS-00840	10468	B	The FOS shall ensure		functional	approved	test		



				that no activities cause hard constraint violations in the Detailed Activity Schedule.						
<b>CT</b>	F-PAS-00840								<u>verified</u>	
<b>CC</b>	F-PAS-00900	1167	B	The FOS shall provide the capability to identify any activity in the mission schedule that causes a soft constraint violation.		functional		test		
<b>CT</b>	F-PAS-00900								<u>verified</u>	
<b>CC</b>	F-PAS-00905	10469	B	The FOS shall provide the capability to identify any activity in the mission schedule that causes a hard constraint violation.		functional	approved	test		
<b>CT</b>	F-PAS-00905								<u>verified</u>	
<b>CC</b>	F-PAS-00910	1169	B	The FOS shall provide the capability to determine the constraints that an		functional		test		

				activity is violating.						
<b>CT</b>	F-PAS-00910								<u>verified</u>	
<b>CC</b>	F-PAS-00915	1170	B	The FOS shall model the spacecraft power subsystem.		functional		analysis		
<b>CT</b>	F-PAS-00915								<u>verified</u>	
<b>CC</b>	F-PAS-00920	1171	B	The FOS shall model spacecraft data volume.		functional		analysis		
<b>CT</b>	F-PAS-00920								<u>verified</u>	
<b>CC</b>	F-PAS-00925	1172	B	The FOS shall be able to determine when the sun is in the field of view limits of an instrument.		functional		analysis		
<b>CT</b>	F-PAS-00925								<u>verified</u>	
<b>CC</b>	F-PAS-00940	1175	B	The FOS shall be able to model state and mode changes in an instrument.		functional		analysis		
<b>CT</b>	F-PAS-00940								<u>verified</u>	
<b>CC</b>	F-PAS-00945	1176	B	The FOS shall be able to determine when an activity violates an 'order' constraint.	An 'order' constraint is one which states that activities must be scheduled in a certain order.	functional		test		

<b>CT</b>	F-PAS-00945								<u>verified</u>	
<b>CC</b>	F-PAS-00950	1177	B	The FOS shall be able to determine when an activity violates a time spacing constraint.	A time spacing constraint is one which states that two activities must be separated by a minimum time interval.	functional		test		
<b>CT</b>	F-PAS-00950								<u>verified</u>	
<b>CC</b>	F-PAS-01000	10470	A	The FOS shall be able to schedule one activity in less than 4 seconds.		performance	approved	test		
<b>CT</b>	F-PAS-01000								<u>verified</u>	
<b>CC</b>	F-PAS-01035	4970	B	The FOS shall be able to release a Detailed Activity Schedule (DAS) containing 1000 activities in less than 10 minutes. The process of releasing a DAS includes:a. Generate a schedule boundary that defines the DASb. Identify activities in the DAS that		performance		test		

				violate hard and soft constraints. Change the protections on activities in the DAS to restrict schedule modifications to TOOs and Late Changes						
<b>CT</b>	F-PAS-01035								<u>verified</u>	
<b>CC</b>	F-PAS-01040	2183	B	The FOS shall be able to schedule TDRSS contact requests for a one week time period in less than 1 hour after all appropriate inputs have been received.		performance		demo		
<b>CT</b>	F-PAS-01040								<u>verified</u>	
<b>CC</b>	F-PAS-01120	10555	B	The FOS shall include the beginning and ending of scheduled communications contact activities as mission events.		functional	approved	test		
<b>CT</b>	F-PAS-01120								<u>verified</u>	
<b>CC</b>	F-PAS-01125	1185	B	The FOS		functional		test		

				shall provide the capability for an authorized user to include orbital events as mission events.						
<b>CT</b>	F-PAS-01125								<u>verified</u>	
<b>CC</b>	F-PAS-01210	9314	B	The FOS shall verify a load is valid over the time period specified in the uplink request.		functional		test		
<b>CT</b>	F-PAS-01210								<u>verified</u>	
<b>CC</b>	F-PAS-01300	1191	B	The FOS shall provide the capability for an authorized user to generate a graphical timeline plot of a mission schedule.		functional		test		
<b>CT</b>	F-PAS-01300								<u>verified</u>	
<b>CC</b>	F-PAS-10010	13075	B	The FOS shall provide a list of ASTER activities that could not be included in the AM-1		interface	approved	test	<u>unverified</u>	97-0720

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<b>CC</b>	F-PAS-10300	13081	A	The FOS shall receive a list of ASTER activities from the ASTER ICC as specified in the ASTER ICC ICD.		interface	approved	demo	<del>unverified</del>	97-0720
<b>CT</b>	F-PAS-10300								<u>verified</u>	
<b>CC</b>	F-PAS-10312	2156	B	The FOS shall provide AM-1 resource allocations to the ASTER ICC.	This allows ASTER to determine how much data buffer is available to them, when they can slew telescopes, whether power is limited, etc.	interface		demo		
<b>CT</b>	F-PAS-10312								<u>verified</u>	
<b>CC</b>	F-PAS-10436	13016	B	The EOC shall provide the capability to schedule AM-1 backup ground station (backup X-band) contacts.	Requirement met by M&O procedures.	procedural	approved	analysis	<del>unverified</del>	97-0518B
<b>CT</b>	F-PAS-10436								<u>verified</u>	
<b>CC</b>	F-PAS-10445	9316	B	The EOC shall provide the capability to include AM-1		functional		test		

				direct access system events on the AM-1 mission schedule.						
<b>CT</b>	F-PAS-10445								<u>verified</u>	
<b>CC</b>	F-PAS-10447	12143	B	The FOS shall accept two different types of user-defined parameters for the Communicat ion Contact Scheduler algorithm. The two types are:a. Parameters which specify the desired nature of the schedule. These comprise both discrete values and score profiles.b. Parameters which determine the time to run vs. schedule care tradeoff for the algorithm.		functional		demo	<u>unverified</u>	97-0065
<b>CT</b>	F-PAS-10447								<u>verified</u>	
<b>CC</b>	F-PAS-10448	12146	B	The FOS	User specified	functional		test	<u>unverified</u>	97-0065



				shall provide a Communications Contact Scheduler algorithm which produces an optimized schedule based on the users' parameters.	parameters are listed in F-PAS-10447.					
<b>CT</b>	F-PAS-10448								<u>verified</u>	
<b>CC</b>	F-PAS-10449	13021	B	The EOC shall provide the capability to receive AM-1 Backup Ground Station view periods from the FDF.	DMS has responsibility for this requirement.	interface	approved	test	<del>unverified</del>	97-0518B
<b>CT</b>	F-PAS-10449								<u>verified</u>	
<b>CC</b>	F-PAS-10450	13077	B	The FOS shall provide the Detailed Activity Schedule start and end times to the ASTER ICC.		interface	approved	demo	<del>unverified</del>	97-0720
<b>CT</b>	F-PAS-10450								<u>verified</u>	
<b>CC</b>	F-PAS-10515	2172	B	The EOC shall provide the capability to identify activities that would require the high gain		functional		test		

				antenna (HGA) to slew faster than the maximum slew rate as defined in the database.						
<b>CT</b>	F-PAS-10515								<u>verified</u>	
<b>CC</b>	F-PAS-10535	11869	A	The FOS shall provide the capability to model the modes for the AM-1 spacecraft and instruments as defined in the PDB.		functional	approved	test	<u>unverified</u>	96-1358A
<b>CT</b>	F-PAS-10535								<u>verified</u>	
<b>CC</b>	F-PAS-10570	13079	B	The FOS shall be able to schedule a list of 200 ASTER activities within 30 minutes after being submitted by the ASTER ICC.		performance	approved	test	<u>unverified</u>	97-0720
<b>CT</b>	F-PAS-10570								<u>verified</u>	
<b>CC</b>	F-PAS-10575	13080	B	The FOS shall be able to return feedback of activities that could not be		performance	approved	test	<u>unverified</u>	97-0720

[illegible]

<b>CC</b>	F-RMS-00035	1313	A	The EOC shall allow EOC operators to specify a version of the project data base to use in processing data.	For real-time data, the default will be the current project data base, and for historical data the default will be the project data base from the corresponding timeframe.	functional		test		
<b>CT</b>	F-RMS-00035								<u>verified</u>	
<b>CC</b>	F-RMS-00040	1314	A	The EOC shall allow EOC operators to identify EOC resources for operational mode.	Identifying a logical string for operation, test or training mode will not constrain the use of that logical string. This identification merely serves notice to all potential users of the intended use for a given string.	functional		test		
<b>CT</b>	F-RMS-00040								<u>verified</u>	
<b>CC</b>	F-RMS-00050	1315	A	The EOC shall allow EOC operators to identify EOC resources for test mode.	Identifying a logical string for operation, test or training mode will not constrain the use of that logical string. This	functional		test		

					identification merely serves notice to all potential users of the intended use for a given string.					
<b>CT</b>	F-RMS-00050								<u>verified</u>	
<b>CC</b>	F-RMS-00060	1316	A	The EOC shall allow EOC operators to identify EOC resources for training mode.	Identifying a logical string for operation, test or training mode will not constrain the use of that logical string. This identification merely serves notice to all potential users of the intended use for a given string.	functional		test		
<b>CT</b>	F-RMS-00060								<u>verified</u>	
<b>CC</b>	F-RMS-00070	1317	A	The EOC shall provide an EOC operator access to real-time data.		functional		test		
<b>CT</b>	F-RMS-00070								<u>verified</u>	
<b>CC</b>	F-RMS-00080	10486	B	The EOC shall provide an EOC operator access to replay data.	Replay data consists of both real-time and spacecraft recorder data currently	functional	approved	test		

[illegible]

<b>CC</b>	F-RMS-01020	1329	A	The EOC shall ensure a single point of command for a given spacecraft.		functional		demo		
<b>CT</b>	F-RMS-01020								<u>verified</u>	
<b>CC</b>	F-RMS-01030	1330	A	The EOC shall accept, validate, and process EOC operator requests to acquire the spacecraft command privilege.		functional		test		
<b>CT</b>	F-RMS-01030								<u>verified</u>	
<b>CC</b>	F-RMS-01060	10492	B	The EOC shall provide the capability to authorize an EOC operator to modify the ground system configuration .		functional	approved	test		
<b>CT</b>	F-RMS-01060								<u>verified</u>	
<b>CC</b>	F-RMS-01070	10493	B	The EOC shall allow only one authorized EOC operator, at any given time, the privilege to modify the	Ground configuration authority is granted on a per logical string basis.	functional	approved	demo		

				ground system configuration .						
<b>CT</b>	F-RMS-01070								<u>verified</u>	
<b>CC</b>	F-RMS-03040	1340	B	The EOC shall maintain changes to the ground configuration and hardware and software component statuses.		functional		test		
<b>CT</b>	F-RMS-03040								<u>verified</u>	
<b>CC</b>	F-RMS-03050	1341	B	The EOC shall make ground configuration and component statuses available for display to the EOC operators.		functional		test		
<b>CT</b>	F-RMS-03050								<u>verified</u>	
<b>CC</b>	F-RMS-03070	1343	B	The EOC shall notify the operator of changes in the ground configuration and component statuses.		functional		test		
<b>CT</b>	F-RMS-03070								<u>verified</u>	
<b>CC</b>	F-RMS-03080	1344	B	The EOC shall log changes in		functional		demo		



				the ground configuration and component statuses.						
<b>CT</b>	F-RMS-03080								<u>verified</u>	
<b>CC</b>	F-RMS-04010	1361	B	The EOC shall provide the capability to send User Performance Data Request messages to the NCC.		interface		demo		
<b>CT</b>	F-RMS-04010								<u>verified</u>	
<b>CC</b>	F-RMS-04020	10494	A	The EOC shall provide the capability to send the following Ground Configuration Message Requests to the NCC:a. User Reacquisition Requestb. User Reconfiguration Requestc. Forward Link Sweep Requestd. Forward Link EIRP Reconfiguration Requeste.		interface	approved	demo		

				Expand User Frequency Uncertainty Requestf. Doppler Compensati on Inhibit/Enabl e Request						
<b>CT</b>	F-RMS-04020								<u>verified</u>	
<b>CC</b>	F-RMS-04085	1364	B	The EOC shall provide the capability to receive and process Time Transfer messages from the NCC.	Reference Section 7.2.5.3.	interface		demo		
<b>CT</b>	F-RMS-04085								<u>verified</u>	
<b>CC</b>	F-RMS-04090	1365	B	The EOC shall provide the capability to receive and process Acquisition Failure Notification messages from the NCC.		interface		demo		
<b>CT</b>	F-RMS-04090								<u>verified</u>	
<b>CC</b>	F-RMS-04100	10495	A	The EOC shall provide the capability to receive and process GCM Status messages		interface	approved	demo		

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<b>CC</b>	F-TLM-00115	10497	B	The EOC shall be capable of receiving EOS spacecraft simulator telemetry.	The spacecraft simulator data may originate at the spacecraft contractor facility, spacecraft software development facility, or EOC.	interface	approved	demo		
<b>CT</b>	F-TLM-00115								<u>verified</u>	
<b>CC</b>	F-TLM-00120	10498	B	The EOC shall be capable of receiving historical EOS spacecraft and instrument telemetry.	Historical telemetry data is nominally stored in the EOC short term archive for seven (7) days. Data older than seven (7) days can be retrieved from the GSFC DAAC.	interface	approved	demo		
<b>CT</b>	F-TLM-00120								<u>verified</u>	
<b>CC</b>	F-TLM-00135	1372	A	The EOC shall be capable of receiving telemetry in either EDU or CCSDS packet format.	The EOC is required to directly accept and process archived instrument engineering telemetry in CCSDS packet form. Spacecraft and	interface		demo		

					instrument housekeeping telemetry CCSDS packets will be received encapsulated within EDUs.					
<b>CT</b>	F-TLM-00135								<u>verified</u>	
<b>CC</b>	F-TLM-00210	1373	A	The EOC shall accept EDOS Data Units (EDUs) containing spacecraft and instrument telemetry data.		interface		test		
<b>CT</b>	F-TLM-00210								<u>verified</u>	
<b>CC</b>	F-TLM-00215	1374	A	The EOC shall extract the EDU Service Header (ESH) containing data quality, accounting, and EDOS ground receipt date and time information from the EDU.		functional		test		
<b>CT</b>	F-TLM-00215								<u>verified</u>	
<b>CC</b>	F-TLM-00220	1375	A	The EOC shall extract the Service Data Unit (SDU) containing a		functional		test		

				CCSDS Version-1 spacecraft or instrument telemetry packet from the EDU.						
<b>CT</b>	F-TLM-00220								<u>verified</u>	
<b>CC</b>	F-TLM-00310	10499	B	The FOS shall base the quality of a packet on the quality indicator received in the EDU header.	EDOS discards packets containing errors which are not correctable via the Reed- Solomon error detection and correction algorithm. The FOS will process all packets which are received.	functional	approved	demo		
<b>CT</b>	F-TLM-00310								<u>verified</u>	
<b>CC</b>	F-TLM-00315	10500	B	The FOS shall mark all parameters decommutat ed from a packet containing an error as having questionable quality.	The FOS performs derived parameter calculations and marks the result as having questionable quality if a data point with questionable quality is required for use in calculating	functional	approved	demo		

					the derived parameter.					
<b>CT</b>	F-TLM-00315								<u>verified</u>	
<b>CC</b>	F-TLM-00410	1378	A	The FOS shall accept a CCSDS Version-1 format telemetry packet of a predefined type and length.	The packets to be processed are defined within the Project Data Base and are organized by APID.	interface		test		
<b>CT</b>	F-TLM-00410								<u>verified</u>	
<b>CC</b>	F-TLM-00440	1379	A	The FOS shall extract from the telemetry packet primary header field the following: a. The 11-bit packet APID. b. The 14-bit packet sequence count. c. The two (2) octet packet length count.	The FOS will examine the CCSDS packet sequence count located within the primary header to determine a proper packet sequence and to detect missing packets.	functional		test		
<b>CT</b>	F-TLM-00440								<u>verified</u>	
<b>CC</b>	F-TLM-00445	1380	A	The FOS shall generate a notification message whenever a missing packet is detected.	Each missing packet notification message will contain the detection time (UTC) and the total number of packets recognized as	functional		test		

					being missed.					
<b>CT</b>	F-TLM-00445								<u>verified</u>	
<b>CC</b>	F-TLM-00450	1381	A	The FOS shall be capable of extracting from the telemetry packet application data field the following: a. An optional CCSDS packet secondary header field .b. The packet application process telemetry information.	CCSDS defines the packet secondary header as being an optional data field within each CCSDS packet. However, it is envisioned that this field will be used throughout the EOS missions and will contain an eight (8) octet packet time stamp. The application process telemetry information contains the telemetered spacecraft and instrument sample point values.	functional		test		
<b>CT</b>	F-TLM-00450								<u>verified</u>	
<b>CC</b>	F-TLM-00490	1382	A	The FOS shall provide the capability to convert the packet time stamp according to	Examples of time codes are CCSDS Unsegmented Time Code and CCSDS Day Segmented	functional		test		



				a specified spacecraft time code conversion algorithm.	Time Code. AM-1 uses CCSDS Day Segmented Time Code and does not require spacecraft time fly wheeling. Spacecraft time flywheel is not required for AM-1, but may be necessary for future missions. (Reference "Time Code Formats", Blue Book, CCSDS 301.0-B-2.)					
<b>CT</b>	F-TLM-00490								<u>verified</u>	
<b>CC</b>	F-TLM-00510	1383	A	The FOS shall support the decommutation of spacecraft housekeeping telemetry for the EOS spacecraft.		functional		test		
<b>CT</b>	F-TLM-00510								<u>verified</u>	
<b>CC</b>	F-TLM-00515	1384	A	The FOS shall support the decommutation of instrument housekeeping		functional		test		

				g telemetry for the EOS instruments.						
<b>CT</b>	F-TLM-00515								<u>verified</u>	
<b>CC</b>	F-TLM-00525	1386	A	The FOS shall determine the decommutation algorithm for a telemetered CCSDS packet application data field based upon the packet application process identifier (APID).	The FOS supports the processing of engineering data for engineering telemetry downlinked with its own CCSDS packet application identifier.	functional		test		
<b>CT</b>	F-TLM-00525								<u>verified</u>	
<b>CC</b>	F-TLM-00530	1387	A	The FOS shall decommutate telemetry based upon predefined spacecraft and instrument specific decommutation information.	The decommutation information will consist of data necessary for the retrieval and storage of downlinked spacecraft telemetry parameters. This decommutation information will be based on the Project Data Base.	functional		test		
<b>CT</b>	F-TLM-00530								<u>verified</u>	
<b>CC</b>	F-TLM-00610	1391	A	The FOS	A static	functional		demo		

[illegible]

<b>CC</b>	F-TLM-00635	1394	A	The FOS shall mark a parameter as being active when it has been successfully decommutated.		functional		test		
<b>CT</b>	F-TLM-00635								<u>verified</u>	
<b>CC</b>	F-TLM-00710	1395	A	The FOS shall provide for the assembly of parameters from multiple and contiguous bits.		functional		test		
<b>CT</b>	F-TLM-00710								<u>verified</u>	
<b>CC</b>	F-TLM-00715	1396	A	The FOS shall provide for the assembly of parameters from multiple and non-contiguous bits.	The parameter construction information will be based on the Project Data Base and will include the location of data in the downlink telemetry (packet), the parameter start bit, and the number of bits to gather. This and the previous requirement allow for the decommutatio	functional		test		

					n of parameters that cross word boundaries.					
<b>CT</b>	F-TLM-00715								<u>verified</u>	
<b>CC</b>	F-TLM-00720	1397	A	The FOS shall be capable of extracting a maximum of 8 "components" for any one telemetry parameter.	Each component is considered a contiguous grouping of bits that are capable of being extracted simultaneously. for each parameter, FOS will have the ability to extract and assemble from one (1) to eight (8) groups of bits whose total number of bits does not exceed thirty-two (32).	functional		test		
<b>CT</b>	F-TLM-00720								<u>verified</u>	
<b>CC</b>	F-TLM-00725	11870	A	The FOS shall provide a mechanism to collect all components before any subsequent processing can be initiated for telemetry	Examples of subsequent processing whoud include limit sensing, EU conversion, etc.	functional		test	<u>unverified</u>	96-1358A

				parameters with multiple components.						
<b>CT</b>	F-TLM-00725								<u>verified</u>	
<b>CC</b>	F-TLM-00730	1399	A	The FOS shall extract all components for a telemetry parameter from the same packet.	The quality of the parameter composite value will be based upon the quality of all components.	functional		test		
<b>CT</b>	F-TLM-00730								<u>verified</u>	
<b>CC</b>	F-TLM-00735	1400	A	The FOS shall be capable of extracting a maximum of 32 bits for any one telemetry parameter.	The exact bit pattern extracted for a given parameter is referred to as the raw value.	functional		test		
<b>CT</b>	F-TLM-00735								<u>verified</u>	
<b>CC</b>	F-TLM-00910	1443	A	The FOS shall allow one predefined EU conversion algorithm to be active for each parameter.		functional		test		
<b>CT</b>	F-TLM-00910								<u>verified</u>	
<b>CC</b>	F-TLM-00945	1448	A	The FOS shall be capable of performing EU conversions	Linear interpolation conversion will use the following equation:	functional		test		

				using linear interpolation with no more than 15 pairs of start and end-points that specify 15 contiguous line segments of increasing value.	$y = mx + b$ where x is the raw value, m is the slope of the given segment, b is the y-axis intercept, and y is the converted value.					
CT	F-TLM-00945								verified	
CC	F-TLM-00960	1449	A	The FOS shall mark accordingly any telemetry parameter that results in an error during the EU conversion process.	For example, conversion errors could occur in the case of overlapping line segment end points. Such errors should be eliminated during telemetry data base validation.	functional		test		
CT	F-TLM-00960								verified	
CC	F-TLM-00970	10509	B	The FOS shall provide the capability for the user to adjust the predefined EU conversion algorithm coefficient values.	Changing of the coefficient values via user directive is temporary. Permanent alterations may be accommodated through changes in the coefficient values	functional	approved	test		

					resident within the Project Data Base. Whenever a new set of limits is loaded, the data base defined values will be restored.					
CT	F-TLM-00970								<u>verified</u>	
CC	F-TLM-00985	12010	B	The FOS shall allow specification of up to eight (8) different EU segments for each analog parameter.	A separate EU conversion can be specified for each segment.	functional		test	<u>unverified</u>	97-0068A
CT	F-TLM-00985								<u>verified</u>	
CC	F-TLM-00990	12011	B	The FOS shall be capable of performing conversion of segmented EUs.	Segmented EU conversion will use the following equation: $y = C_0 + C_1X + C_2X^2 + C_3X^3$ where X is the decoded value, C <sub>i</sub> is a data base defined coefficient, and y is the converted value.	functional		test	<u>unverified</u>	97-0068A
CT	F-TLM-00990								<u>verified</u>	
CC	F-TLM-01010	1415	A	The FOS shall perform		functional		demo		



				high/low limit checking on parameters when limits have been defined.						
<b>CT</b>	F-TLM-01010								<u>verified</u>	
<b>CC</b>	F-TLM-01015	1416	A	The FOS shall have the capability to limit check parameters for red high, red low, yellow high, and yellow low boundary violations.		functional		test		
<b>CT</b>	F-TLM-01015								<u>verified</u>	
<b>CC</b>	F-TLM-01040	1421	A	The FOS shall limit check telemetry data against its associated limit values for every occurrence of the parameter.		functional		demo		
<b>CT</b>	F-TLM-01040								<u>verified</u>	
<b>CC</b>	F-TLM-01045	10514	B	The FOS shall compare the change of successive raw parameter values with the	Delta limits are specified through the Project Data Base.	functional	approved	test		

				predefined delta value.						
<b>CT</b>	F-TLM-01045								<u>verified</u>	
<b>CC</b>	F-TLM-01050	10515	B	The FOS shall perform limit checking only on good quality data.		functional	approved	test		
<b>CT</b>	F-TLM-01050								<u>verified</u>	
<b>CC</b>	F-TLM-01110	1425	A	The FOS shall notify the user when a parameter violates high/low limits.		functional		demo		
<b>CT</b>	F-TLM-01110								<u>verified</u>	
<b>CC</b>	F-TLM-01115	1426	A	The FOS shall notify the user when a parameter returns to within high/low limits.		functional		demo		
<b>CT</b>	F-TLM-01115								<u>verified</u>	
<b>CC</b>	F-TLM-01120	10516	B	The FOS shall notify the user when a parameter incurs a delta limit violation.		functional	approved	test		
<b>CT</b>	F-TLM-01120								<u>verified</u>	
<b>CC</b>	F-TLM-01125	1428	A	The FOS limit notification shall contain	Every notification (event) message is	functional		test		

				the current packet spacecraft time stamp, telemetry mnemonic, parameter value, limit condition, and assigned limit values.	tagged with a ground time stamp. Additionally, each limit notification message will include the spacecraft time stamp within the message text field.					
<b>CT</b>	F-TLM-01125								<u>verified</u>	
<b>CC</b>	F-TLM-01130	10517	B	The FOS limit notification shall be reported when a telemetry point exceeds a limit, when the point comes back in limits, and every Nth occurrence (based upon the limit sense interval).		functional	approved	test		
<b>CT</b>	F-TLM-01130								<u>verified</u>	
<b>CC</b>	F-TLM-01135	1430	A	The FOS shall generate a notification without an alarm for limit violations in the yellow		functional		test		

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<b>CC</b>	F-TLM-01165	10522	B	The FOS shall provide the capability of disabling or enabling notification messages concerning limits at the spacecraft subsystem/instrument level.		functional	approved	demo		
<b>CT</b>	F-TLM-01165								<u>verified</u>	
<b>CC</b>	F-TLM-01220	10525	B	The FOS shall allow adjustment of limit values only for those telemetry parameters that have predefined limit values.		functional	approved	demo		
<b>CT</b>	F-TLM-01220								<u>verified</u>	
<b>CC</b>	F-TLM-01410	1451	A	The FOS shall make available the values for every predefined telemetry parameter.		functional		demo		
<b>CT</b>	F-TLM-01410								<u>verified</u>	
<b>CC</b>	F-TLM-01420	1453	A	The FOS shall retain the parameter data until replaced by more recent		functional		demo		

				data and/or system reconfigurati on.						
<b>CT</b>	F-TLM-01420								<u>verified</u>	
<b>CC</b>	F-TLM-01430	1455	A	The FOS shall initialize/bas eline all decommutat ed and converted value areas when no telemetry data is available.	For example, this would occur during pre-contact system configuration when telemetry data is yet to be received.	functional		demo		
<b>CT</b>	F-TLM-01430								<u>verified</u>	
<b>CC</b>	F-TLM-01510	10531	B	The EOC shall store telemetry data as received from EDOS.	Telemetry data is received from EDOS in the form of EDUs containing spacecraft and instrument CCSDS telemetry packets.	functional	approved	demo		
<b>CT</b>	F-TLM-01510								<u>verified</u>	
<b>CC</b>	F-TLM-01545	11180	B	The EOC shall provide the capability to enable and disable the storage of housekeepin g and instrument engineering telemetry.		functional	approved	test	<u>unverified</u>	96-0952A

<b>CT</b>	F-TLM-01545								<u>verified</u>	
<b>CC</b>	F-TLM-01610	1464	B	The FOS shall replay telemetry data based upon a user specified time period.		functional		test		
<b>CT</b>	F-TLM-01610								<u>verified</u>	
<b>CC</b>	F-TLM-01625	1465	B	The FOS shall process all telemetry packets for the requested period, during the replay operation.		functional		test		
<b>CT</b>	F-TLM-01625								<u>verified</u>	
<b>CC</b>	F-TLM-01630	1466	B	The FOS shall be capable of processing stored housekeeping and engineering telemetry for analysis at twelve (12) times the real-time rate.	This requirement is derived from the fact that the FOS must be able to analyze twenty-four (24) hours of stored telemetry data within two (2) hours. This capability is used for off-line batch processing and when the immediate display of information is not necessary	performance		test		

					or desired (i.e. gathering statistics on a particular parameter over several weeks of stored telemetry data).					
<b>CT</b>	F-TLM-01630								<u>verified</u>	
<b>CC</b>	F-TLM-01635	1467	B	The FOS shall be capable of processing stored housekeepin g and engineering telemetry for display at rates up 150 Kbps.	This requirement permits the repid replay and display of stored telemetry, and may be useful during contact simulations.	performance		test		
<b>CT</b>	F-TLM-01635								<u>verified</u>	
<b>CC</b>	F-TLM-01640	1468	B	The FOS shall be able to replay and process the telemetry data at the real-time or at a user specified rate.		functional		test		
<b>CT</b>	F-TLM-01640								<u>verified</u>	
<b>CC</b>	F-TLM-01710	1469	B	The EOC shall be capable of accepting and storing the downlinked spacecraft or	For a given spacecraft, the spacecraft and instrument memory dumps are assumed to	interface		test		



				instrument computer memory dump.	be of identical format and will be handled by the EOC in a similar manner.					
<b>CT</b>	F-TLM-01710								<u>verified</u>	
<b>CC</b>	F-TLM-01715	1470	B	The EOC shall detect the start of a computer memory dump and collect the dumped memory data (including fill).		functional		test		
<b>CT</b>	F-TLM-01715								<u>verified</u>	
<b>CC</b>	F-TLM-01720	10533	B	The EOC shall store each computer memory dump collection separately.		functional	approved	test		
<b>CT</b>	F-TLM-01720								<u>verified</u>	
<b>CC</b>	F-TLM-01725	1472	B	The FOS shall notify the user when the start of a computer memory dump collection is recognized.		functional		demo		
<b>CT</b>	F-TLM-01725								<u>verified</u>	
<b>CC</b>	F-TLM-01730	1473	B	The FOS		functional		demo		

				shall notify the user when the completion of a computer memory dump collection is recognized.						
<b>CT</b>	F-TLM-01730								<u>verified</u>	
<b>CC</b>	F-TLM-01825	10551	B	The EOC shall provide the capability to decommutate and provide data to the FDF as the parameters are being extracted from telemetry.		interface	approved	test		
<b>CT</b>	F-TLM-01825								<u>verified</u>	
<b>CC</b>	F-TLM-01830	1478	B	The EOC shall provide the capability to format and store data as the parameters are being extracted from telemetry.		functional		test		
<b>CT</b>	F-TLM-01830								<u>verified</u>	
<b>CC</b>	F-TLM-02110	1480	B	The EOC shall compare expected		functional		demo		

				values of specified parameters with the actual values received in the telemetry stream.						
<b>CT</b>	F-TLM-02110								<u>verified</u>	
<b>CC</b>	F-TLM-02115	1481	B	The EOC shall perform spacecraft state checking only on good quality telemetry data.		functional		test		
<b>CT</b>	F-TLM-02115								<u>verified</u>	
<b>CC</b>	F-TLM-02120	1482	B	The EOC shall perform spacecraft state checks for discrete telemetry values that can be changed via spacecraft command and that can be verified through housekeeping telemetry.		functional		demo		
<b>CT</b>	F-TLM-02120								<u>verified</u>	
<b>CC</b>	F-TLM-02125	1483	B	The EOC spacecraft state check shall reveal any deviations		functional		test		

				between the current state and expected state.						
<b>CT</b>	F-TLM-02125								<u>verified</u>	
<b>CC</b>	F-TLM-02130	1484	B	The EOC shall report the differences between the expected and actual spacecraft states.	Any differences will be reported as notification messages.	functional		test		
<b>CT</b>	F-TLM-02130								<u>verified</u>	
<b>CC</b>	F-TLM-02135	1485	B	The EOC shall provide the capability for the user to invoke spacecraft state checking.		functional		test		
<b>CT</b>	F-TLM-02135								<u>verified</u>	
<b>CC</b>	F-TLM-02140	1486	B	The EOC shall provide the capability to baseline the expected spacecraft state values with current downlink telemetry.	The table of expected spacecrt parameter values can be over-written with the current spacecraft telemetry values. If necessary, the user is then permitted to invoke the spacecraft	functional		test		

					check several times during a contact.					
<b>CT</b>	F-TLM-02140								<u>verified</u>	
<b>CC</b>	F-TLM-02250	4802	B	The EOC shall be capable of storing non-telemetry messages as they are being received.		functional		test		
<b>CT</b>	F-TLM-02250								<u>verified</u>	
<b>CC</b>	F-TLM-10125	10534	B	The EOC shall be capable of receiving AM-1 housekeeping and AM-1 diagnostic telemetry data from both the I-channel and Q-channel simultaneously.	For example, the EOC will be able to accept telemetry with the I and Q channels in the following configurations: 2 - 16 kbps housekeeping or 1 - 16 kbps housekeeping and 1 - 16 kbps diagnostic	interface	approved	demo		
<b>CT</b>	F-TLM-10125								<u>verified</u>	
<b>CC</b>	F-TLM-10130	2217	A	The EOC shall be capable of receiving the	This requirement assumes that AM-1	interface		demo		

				1 kbps AM-1 health and safety telemetry data from both the TDRSS S-band and launch vehicle simultaneously.	provides the capability of differentiating between the two health and safety streams.					
<b>CT</b>	F-TLM-10130								<u>verified</u>	
<b>CC</b>	F-TLM-10410	2218	A	The FOS shall accept AM-1 CCSDS format telemetry packets of a predefined type and length.	The FOS will support both pure CCSDS packet telemetry and Time Division Multiplexed (TDM) type telemetry transferred within the CCSDS packets, such as that implemented for AM-1.	interface		demo		
<b>CT</b>	F-TLM-10410								<u>verified</u>	
<b>CC</b>	F-TLM-10415	2219	A	The FOS shall accept AM-1 1664 octet housekeeping telemetry packets.		interface		test		
<b>CT</b>	F-TLM-10415								<u>verified</u>	
<b>CC</b>	F-TLM-10420	10535	B	The FOS shall accept AM-1 1664 octet diagnostic		interface	approved	demo		

				telemetry packets.						
<b>CT</b>	F-TLM-10420								<u>verified</u>	
<b>CC</b>	F-TLM-10425	2221	A	The FOS shall accept AM-1 208 octet health and safety telemetry packets.		interface		test		
<b>CT</b>	F-TLM-10425								<u>verified</u>	
<b>CC</b>	F-TLM-10430	10536	B	The FOS shall accept AM-1 208 octet diagnostic telemetry packets.		interface	approved	demo		
<b>CT</b>	F-TLM-10430								<u>verified</u>	
<b>CC</b>	F-TLM-10435	2223	A	The FOS shall accept AM-1 208 octet standby CTIU telemetry packets.		interface		test		
<b>CT</b>	F-TLM-10435								<u>verified</u>	
<b>CC</b>	F-TLM-10440	2225	A	The FOS shall extract from the telemetry packet primary header field the following: a. The 11-bit packet APID. b. The 14-bit packet sequence	The FOS will examine the AM-1 CCSDS packet sequence count located within the primary header to determine a proper major cycle sequence and to detect	functional		demo		

				count.c. The two (2) octet packet length count.	missing cycles.					
<b>CT</b>	F-TLM-10440								<u>verified</u>	
<b>CC</b>	F-TLM-10445	2226	A	The FOS shall generate a notification message whenever a missing AM-1 major cycle is detected.	Each missing major cycle notification message will contain the detection time (UTC) and the total number of major cycles recognized as being missed.	functional		test		
<b>CT</b>	F-TLM-10445								<u>verified</u>	
<b>CC</b>	F-TLM-10455	2227	A	The FOS shall be capable of extracting the 1649 octet telemetry information from the 16 Kbps AM-1 housekeeping packet application data field.		functional		test		
<b>CT</b>	F-TLM-10455								<u>verified</u>	
<b>CC</b>	F-TLM-10460	10537	B	The FOS shall be capable of extracting the 1649 octet telemetry information from the 16 Kbps AM-1		functional	approved	demo		



				diagnostic packet application data field .						
<b>CT</b>	F-TLM-10460								<u>verified</u>	
<b>CC</b>	F-TLM-10465	2229	A	The FOS shall be capable of extracting the 193 octet telemetry information from the 1 Kbps AM-1 health and safety packet application data field.		functional		test		
<b>CT</b>	F-TLM-10465								<u>verified</u>	
<b>CC</b>	F-TLM-10470	10538	B	The FOS shall be capable of extracting the 193 octet telemetry information from the 1 Kbps AM-1 diagnostic packet application data field.		functional	approved	demo		
<b>CT</b>	F-TLM-10470								<u>verified</u>	
<b>CC</b>	F-TLM-10475	2231	A	The FOS shall be capable of extracting the 193 octet telemetry information from the 1 Kbps AM-1		functional		demo		

				standby CTIU packet application data field.						
<b>CT</b>	F-TLM-10475								<u>verified</u>	
<b>CC</b>	F-TLM-10490	2234	A	The FOS shall provide the capability to convert the packet time stamp according to the CCSDS Day Segmented Time Code time conversion algorithm.		functional		demo		
<b>CT</b>	F-TLM-10490								<u>verified</u>	
<b>CC</b>	F-TLM-10525	2235	A	The FOS shall determine the decommutati on algorithm for a telemetered AM-1 CCSDS packet based upon the packet application process identifier (APID) and packet sequence count fields.		functional		test		
<b>CT</b>	F-TLM-10525								<u>verified</u>	
<b>CC</b>	F-TLM-10535	10539	B	The FOS		performance	approved	test		

				shall be capable of continuously decommutating real-time spacecraft housekeeping telemetry at a rate of 16 Kbps.						
<b>CT</b>	F-TLM-10535								<u>verified</u>	
<b>CC</b>	F-TLM-10540	10540	B	The FOS shall be capable of continuously decommutating real-time instrument housekeeping telemetry at a rate of 16 Kbps.		performance	approved	test		
<b>CT</b>	F-TLM-10540								<u>verified</u>	
<b>CC</b>	F-TLM-10560	10543	B	The FOS shall be capable of continuously decommutating real-time spacecraft health and safety telemetry at a rate of 1 Kbps.		performance	approved	test		
<b>CT</b>	F-TLM-10560								<u>verified</u>	
<b>CC</b>	F-TLM-10570	10544	B	The FOS shall be capable of decommutating real-time spacecraft diagnostic		performance	approved	test		

				telemetry at a rate of 1 Kbps.						
<b>CT</b>	F-TLM-10570								<u>verified</u>	
<b>CC</b>	F-TLM-10575	10545	B	The FOS shall be capable of decommutating real-time instrument diagnostic telemetry at a rate of 1 Kbps.		performance	approved	test		
<b>CT</b>	F-TLM-10575								<u>verified</u>	
<b>CC</b>	F-TLM-10580	10546	B	The FOS shall be capable of decommutating real-time spacecraft standby CTIU telemetry at a rate of 1 Kbps.		performance	approved	test		
<b>CT</b>	F-TLM-10580								<u>verified</u>	
<b>CC</b>	F-TLM-10955	2248	A	The FOS shall be capable of performing EU conversions using an exponential function with three coefficients.	Exponential conversion will use the following equation: $y = C0 + C1e(C2x)$ where x is the raw value, Ci is a data base defined coefficient, e has a value of 2.718, and y is the converted	functional		test		

[illegible]